ENGINEERING NEWS-RECORD

H. C. Boschen: The world is his job site p.44

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The Versatile Shapes of CONCRETE

The adaptability of concrete is self-evident in the variety of useful and ornamental products manufactured by Concrete Units, Inc., Austin, Minn. These range from building staples like chimney block, concrete brick and low silhouette building block to precast road markers, ornamental animals and birds, flower pots, tables, stools, seesaw bases, bird baths and incinerators. A number of these appear in the picture of the company's attractive showroom and patio below.

Penn-Dixie cement is used by Concrete Units, Inc. and many other makers of precast concrete building materials and ornamental products.

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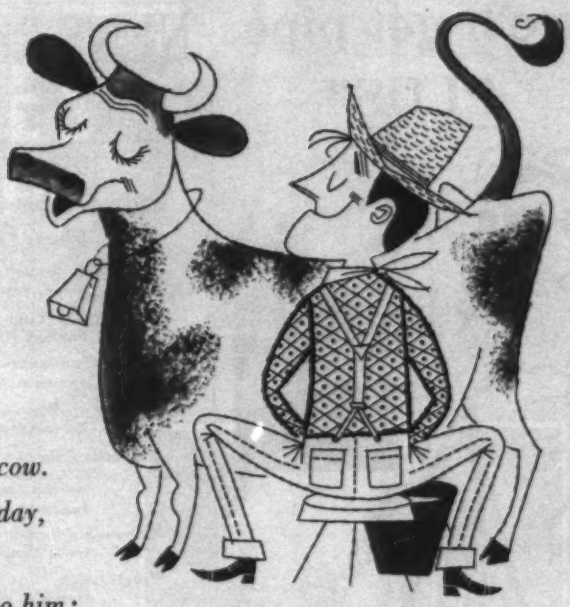
Penn-Dixie means Permanent Dependability

A small fable with a large moral



A Farmer owned a sleek Jersey cow.
He milked the cow every day,
and his children drank every drop.
One day a neighbor said to him:

"Charlie, my cows give more milk than I need.
I'll sell you a bucket a day very cheaply,
and you won't have to bother with milking any more."
The Farmer had a nose for bargains.
He accepted the deal. Instead of milking twice a day,
he had more time to watch TV.
Then one day his neighbor's wife had triplets.
They no longer had any milk to spare.
The Farmer tried to milk old, faithful Bossy,
but—alas—she had dried up.

MORAL: If you don't milk the cow you have, some day you may be awfully thirsty.

Whether you're a farmer or steel buyer, your safest, most reliable suppliers are right here at home. No one knows the needs of American steel buyers better than American steel makers. To serve you, and serve you well, is our primary concern—not just today and tomorrow—but year after year.

For quality steel of certified analysis, meeting the appropriate specifications, you can rely on Bethlehem Steel for such products as reinforcing bars, wire and wire products, pipe, structural shapes, plates, carbon bars . . . hot-rolled, cold-rolled, and galvanized sheets . . . transmission towers and other fabricated steel, wire rope, and industrial fasteners.

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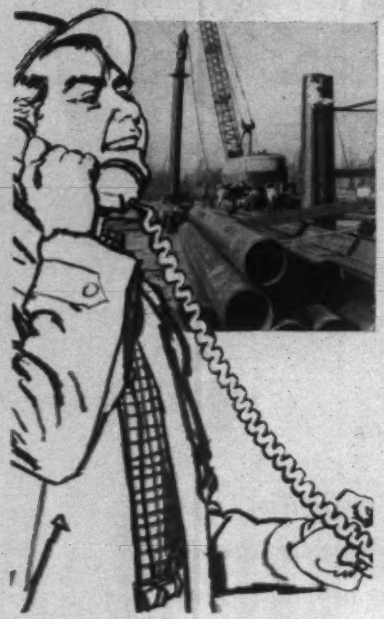

Rush or routine order, Foster delivers *all* the pipe you need . . . "plus". Whether you need Pressure Tested or Structural Pipe 1/8" thru 48", you're sure of getting the fastest, most dependable deliveries from the large nationwide pipe warehouses of L. B. Foster Company.

And, count on another "plus" from Foster *Structural* Pipe. It is ideal for non-pressure applications, for piling, and for light pressure lines, and gives full structural strength at *substantially lower costs.*

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CONTRACTOR: Joe Reinertson of Miami, Inc., Miami, Fla.

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WHICH EXPLOSIVE?

The Penn-Can Highway near New Milford, Penna., connecting the Pennsylvania Turnpike Northeast Extension with the New York Thruway. Contractors: D. A. Kessler Construction Company, Mt. Carmel, Penna. and Lycoming Construction Company, Williamsport, Pennsylvania.

Here's really-effective blasting, the kind that gets more payload service out of all your equipment. Look at the breakage . . . it is uniform and thorough. The rock is "fluffed up" into high peaks that will roll it towards the shovel. Such blasting bottoms well too, with no high spots or boom-straining undisplaced rock under the pile.

Which Explosive? In this case, Atlas AN with Giant "75" primers and Rockmaster® millisecond delay caps initiated at the bottom of 6-in. holes was the right combination for the job.

The point is, breakage, displacement and control like this don't just happen. There is a combination of explosives and blasting methods that is right for every shot. Helping you find the right combination and putting it to work is the job of your Atlas Representative. Working with him, you'll have the advantage of his experience with the latest advances in explosives and techniques. Backed by the complete Atlas line, he can help you determine the explosives combination and the particular blasting methods that will be the most profitable for you on every shot.

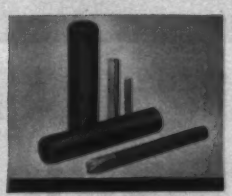
There is only one way to look at explosives costs, and that is: which explosive will give you the most payload service from *all* your equipment? Our blasting cost chart, slide rules and technical literature are designed to help you do exactly that. Ask your Atlas Representative about them . . . or, write directly to:

ATLAS POWDER COMPANY
Explosives Division, Wilmington 99, Del.

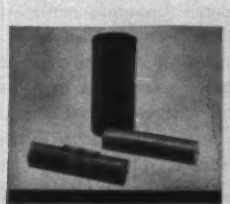
ATLAS EXPLOSIVES

When you use the right combination, all your equipment moves in sooner... works faster... produces more.

ATLAS PELLETS, a new form of ammonium nitrate, have both the density and sensitivity required for efficient ammonium nitrate blasting.



GIANT GELATINS are for high velocity shattering action. They are advantageous for extremes of wet work and for hard, tight shooting.



GIANT "75" PRIMERS have the wallop required for complete, efficient detonation of both field mixed and plant mixed blasting agents.

ROCKMASTER® electric blasting caps achieve the staggered action which has been so important in producing better breakage and control.

Where heavyweights move job records prove...

FIRESTONE IS HAUL-ROAD CHAMPION!

Switch to Firestones and hold downtime to a contract-meeting minimum. You can do this because Firestone off-the-highway tires are job-engineered for the toughest projects. There's a Firestone for every need on any project—and every one is built with Firestone Rubber-X, the longest-wearing rubber ever used in Firestone tires. Exclusive Firestone SHOCK-FORTIFIED nylon cord bodies guard against impact damage. And what's more, Firestone's Giant Tire Service backs up every Firestone tire—that means a Firestone Tire Expert will handle all your tire maintenance problems! Turn downtime into worktime—call your Firestone Dealer or Store today.

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Super Rock Grip Wide Base* Super Rock Grip Deep Tread*

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BETTER RUBBER FROM START TO FINISH

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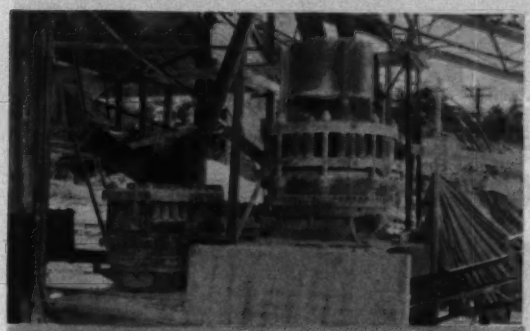
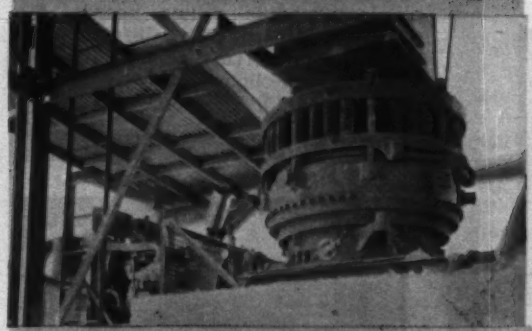


Vermont Marble Co., Florence, Vt., are well satisfied with their 36-S and 36-FC Gyraspheres.

This 48-S Gyrasphere turns out top tonnage for International Lime & Stone Co., Chazy, N. Y.



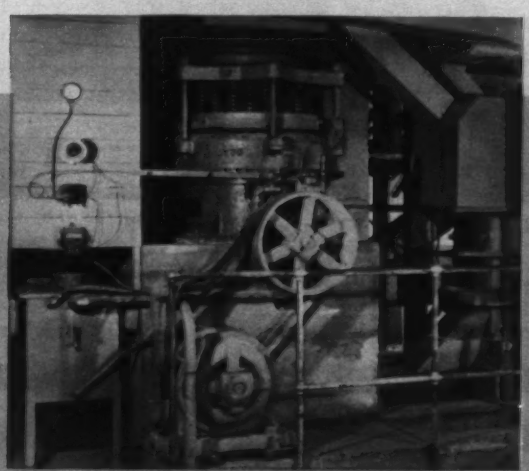
Crushing granite at Lunenburg, Mass., this 36-FC Gyrasphere is doing a fine job for P. J. Keating.

Fitzgerald Bros. Construction Co., Troy, N. Y., like their 48-S and two 36-FC Gyraspheres.

in New England and New York HARD ROCK QUARRIES...

TELSMITH Gyraspheres

Here—where rock is as hard as it comes—the Telsmith Gyrasphere has proved itself. With highest capacity, low power needs, lowest upkeep—to give more and better aggregate *at lowest cost per ton* at a greater profit. Four sizes: 24", 36", 48" and new 66" . . . for coarse or fine crushing. Get Bulletin 274.



Y-20 1059

Cortland Stone Co., Peekskill, N. Y., find their 24-S Gyrasphere very efficient.

SMITH ENGINEERING WORKS

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A "GYM DANDY" SOLUTION FOR NOISE PROBLEMS

Increasingly popular as an acoustical treatment for auditoriums, arenas, etc., are baffles of ULTRALITE® glass fiber insulation. (Typical specs on request.) Spell out your noise problem, and we'll send information on appropriate G-B acoustical insulations.

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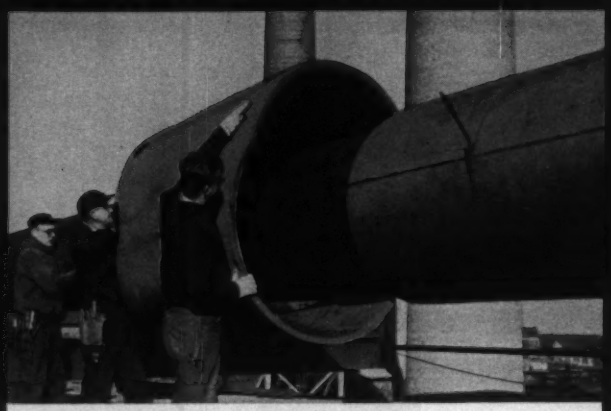
ULTRACOUSTIC® ceiling board is now available in new 4-ft. squares for suspended acoustical ceilings. Lowest in initial cost of all large-module ceiling boards, the new 4-ft. squares install faster, minimize handling and fitting. NRC is .85; light reflection is 85%. Write for UCB brochure.



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. . . with G-B SNAP*ON®, the one-piece pipe insulation molded of fine glass fibers. Sections up to 36" IPS snap over hot or cold lines—indoors or out—in one easy motion. Ask for G-B SNAP*ON brochure.

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A new 8-page brochure that points up the dramatic heat-and-dollar savings that can be achieved by insulating tanks, vats, vessels, and other heated equipment, is just off the press. Ask for UTV brochur

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Thermal and acoustical glass fiber insulations • Molded glass fiber pipe insulation • Couplings and fittings for plain and grooved end pipe

Reader Comment

New Steel Not New

SIR—The new, stronger structural steel reported in ENR May 12, p. 24, and May 19, p. 198, to be coming soon is not really new. It has been possible to buy this steel at a little advance in price over that for A7 steel, and it was used extensively in the recently finished Mississippi River Bridge in New Orleans.

Structural steel of this strength was used prior to the organization of the American Society for Testing Materials by such famous engineers as Captain Eads, George S. Morrison, Ralph Modjeski and others. At that time, the physical properties of this steel were as follows: tensile strength—62,000 to 70,000 psi; yield point—37,000 psi minimum; elongation in 8 in.—22% minimum; and reduction of area—42% minimum.

About the only chemical requirement was a top limit on phosphorus and sulphur, which came down from the old days of Bessemer steel. The steel had to meet a bend test and a reduction of area, and produce silky fracture. The reduction-of-area requirement was of much importance in determining the ductile properties of the heat—more so than the elongation requirement.

Later, as larger and heavier bridges were required, certain reductions were permitted in the ductility requirements, and a clause was added referring to re-tests if the ultimate varied more than 2,000 psi from that specified.

The list of structures involving many thousands of tons of steel meeting the above specification is too long to list in this letter. Some of these bridges are now 100 years old. Yet, due to the excellent physical properties of the steel, the high yield point and the low basic unit stresses for which they were designed, these bridges are safe even for today's loads.

With the advent of ASTM, standard specifications were adopted, largely at the insistence of the producers. These replaced the old specification, reduced yield point to 33,000 psi and increased basic unit stress to 18,000 psi.

The producers insisted there should be an area of overlap between the medium structural steel for bridges and buildings and the mild steel used for flanging and boiler work. This was agreed to by the American Railway Engineering Association and other organizations concerned.

However, the old specification was continued in use for such modern structures as the Benjamin Franklin Bridge in Philadelphia, large railway bridges and many highway bridges.

Early in the days of ASTM, it was the mill practice to take preliminary test coupons from an open-hearth sample to predetermine hastily the carbon content. Today, with modern

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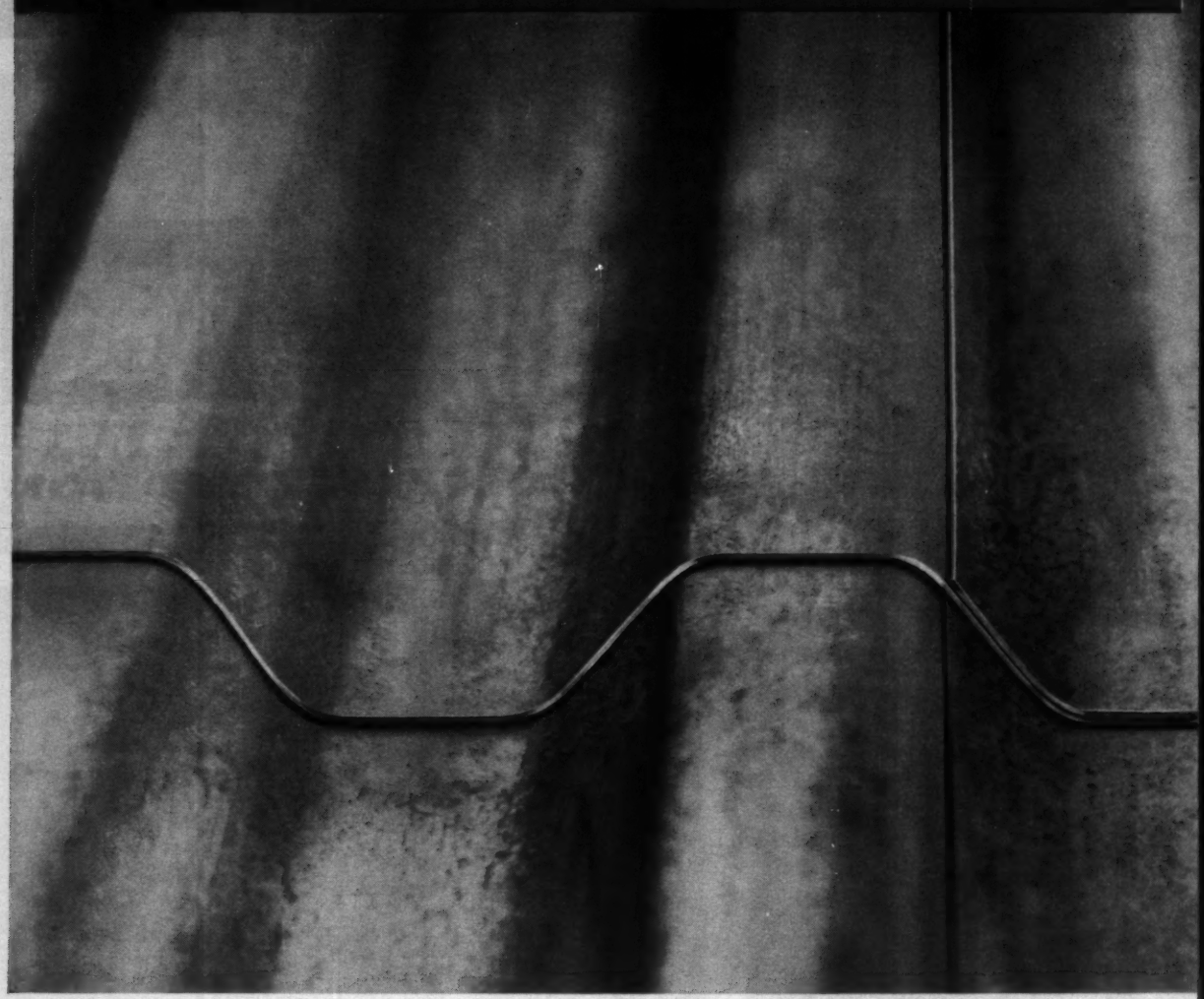


NEW! MORE UNIFORM SHAPE SPEEDS FLOOR

Now! Here's a stronger, easier-to-use permanent steel base for concrete floors and roofs...and for *both* conventional and light-aggregate concrete. It's *all-new* Tensilform by Wheeling!

A full twenty-five per cent stronger, new Tensilform permits fewer, lighter floor and roof supports ...provides excellent lateral stability for all types of structures.

What's more, Tensilform is produced by Wheeling Corrugating Company, long experienced in the fabrication of corrugated steel sheets and other sheet steel products. So it always has close-fitting corrugations . . . always lays quickly.

You gain many other advantages as well by specifying strong, dependable Wheeling Tensilform as a permanent base for concrete floors and roofs! These include:

- Earlier occupancy because shoring is eliminated

WHEELING CORRUGATING COMPANY

Warehouses: *Boston, Buffalo, Chicago, Columbus, Detroit, Kansas City, Louisville, Minneapolis, New Orleans, New York,*

AND ROOF CONSTRUCTION!

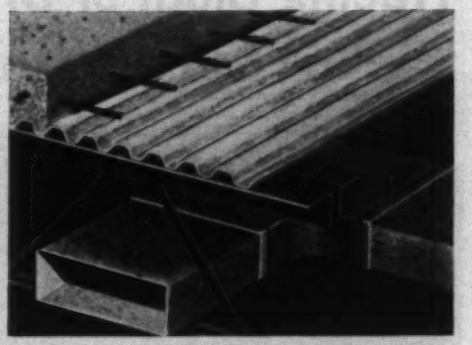
...and Tensilform can be installed in any weather.

- Excellent "U" factors with low initial cost.
- Lower fire as well as extended coverage rates.
- Cleaner construction because precision-formed Wheeling Tensilform cuts cement seepage.

Get the complete story on Tensilform for floor and roof slabs from your Sweet's File. Or write to Wheeling Corrugating Company, Wheeling, West Virginia.

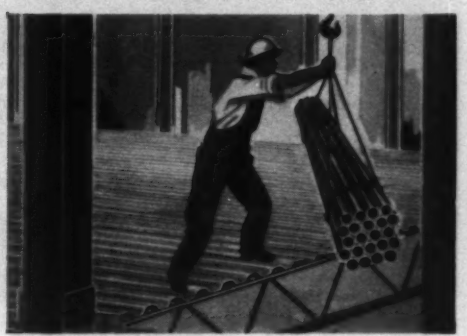
IT'S WHEELING STEEL!

Philadelphia, Richmond, St. Louis. Sales Offices: *Atlanta, Houston.*



EXCELLENT "U" FACTORS AT LOW INITIAL COST! Save your client money by (1) lowering construction costs, and (2) minimizing heating and cooling costs throughout building's life.

SUPERIOR FIRE RESISTANCE! Cuts annual costs because this superior fire resistance is reflected in reduced fire and extended coverage rating.

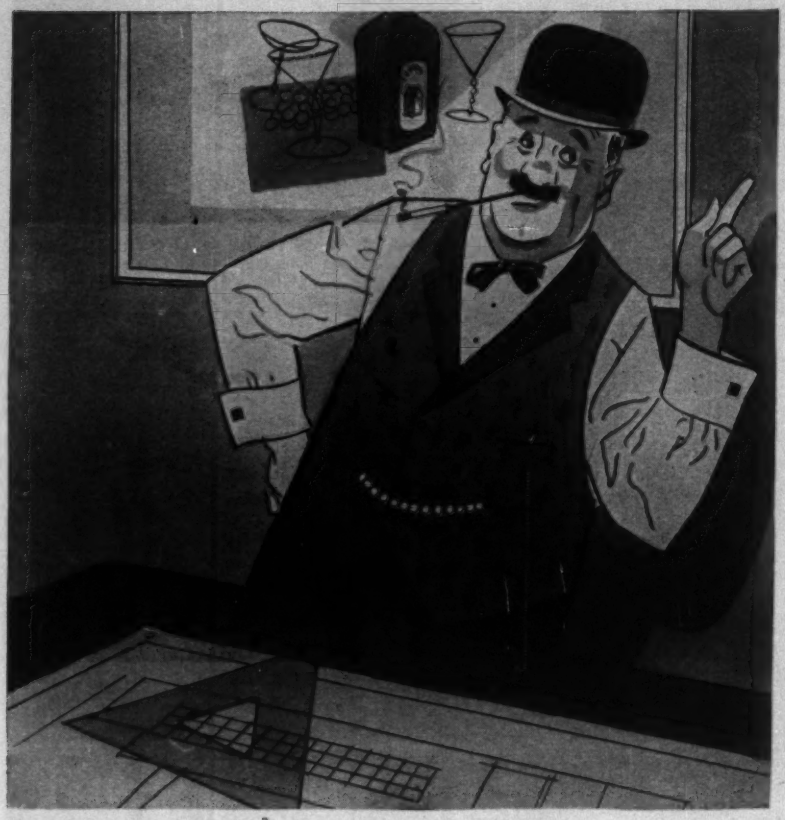


IMMEDIATE, SAFE WORKING DECK! As soon as it's laid, Tensilform speeds construction by providing a sturdy, safe working deck that's used by all crafts.

FULL INFORMATION IN YOUR SWEET'S FILE! Our catalog is in Sweet's. It has complete load tables, deflection charts; in fact, everything you'll need to specify Wheeling Tensilform. (Extra copies upon request!)

Tracing Cloth or Drafting Film*?

Arkwright Makes Them Both



*Based on DuPont "MYLAR" polyester film.

BOB O'BRIEN
WHITEHORSE, CARSTAIRS AND O'BRIEN
BENDER, ILL.
ACTUAL SPECIFYING ENGINEER

On being asked where he would put Old Bearfoot's new distillery, O'Brien answered:

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Data on Spec Writing

SIR—We would like to take this opportunity to congratulate you for your wonderful editorial, "What Price Loose Specs" (ENR April 14, p. 162).

Our engineering office has a number of young men who are beginning to get their "feet wet" in specification writing, and we were wondering whether or not you could recommend where we might be able to secure any literature that would outline the fundamentals of specification writing.

ETTORE VIGNONE
Assistant Executive Director
Housing Authority
Jersey City, N. J.

Editor's Note—A good start would be the section on specifications in Merritt's "Building Construction Handbook," McGraw-Hill Publishing Co.; Goldsmith's "Architects' Specifications," John Wiley & Sons; Sleeper's "Architectural Specifications," John Wiley & Sons; Dyer's "Specification Work Sheets," American Institute of Architects; and Small's "Streamlined Specification Standards," Reinhold Publishing Corp.

Joints Are a Nuisance

SIR—The article on reinforced concrete pavements (ENR May 12, p. 44) states that "current state highway department practice calls for reinforced slabs ranging from 40 to 100 feet in length."

Not a word is said about continuous reinforcement, but it emphasizes that "stronger joint design is an important trend."

Why are engineers so backward about coming forward?

Continuous reinforcement is cheaper and better. Expansion joints are an expensive nuisance and cannot be made as effective as a pavement without them.

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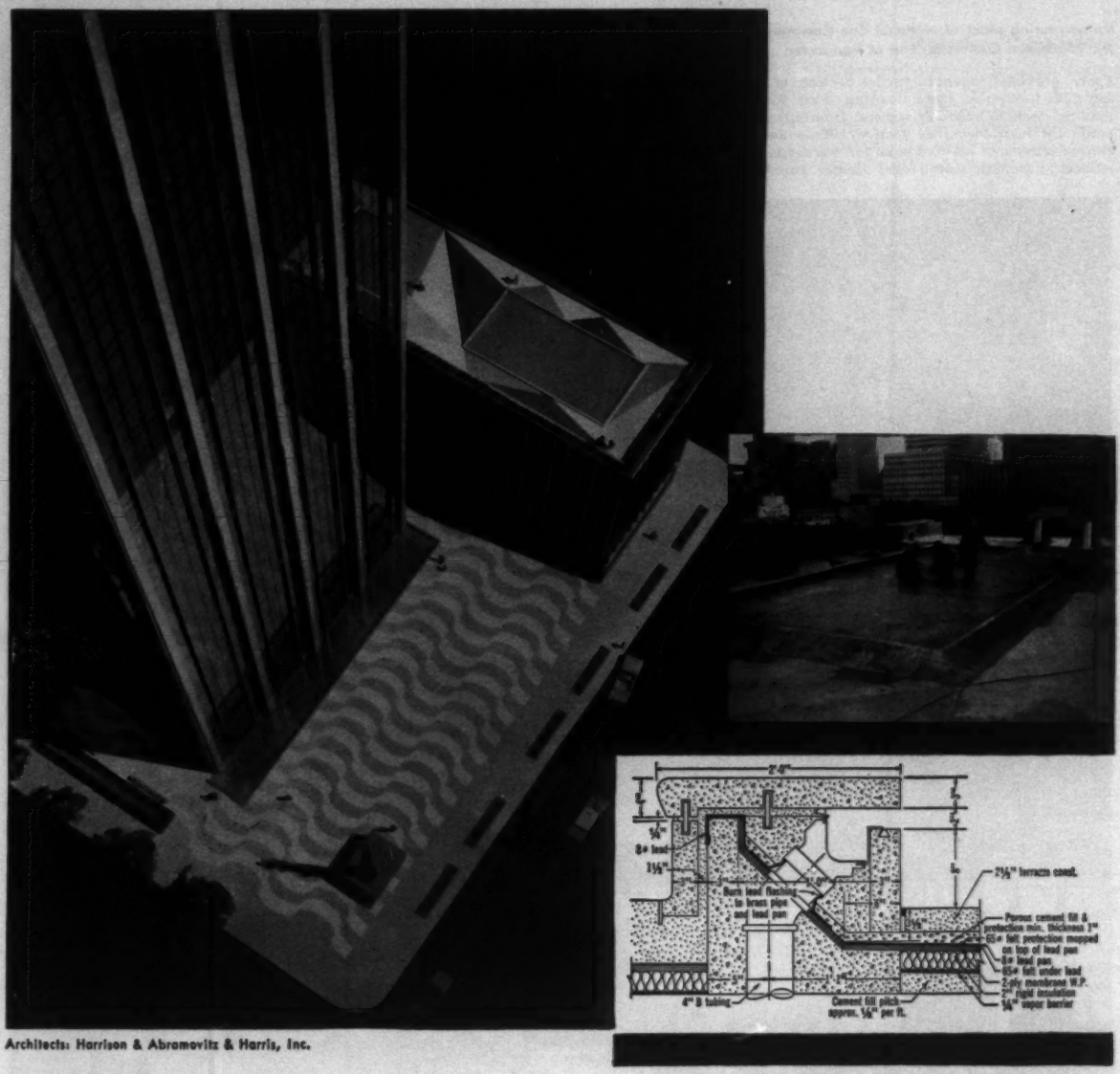
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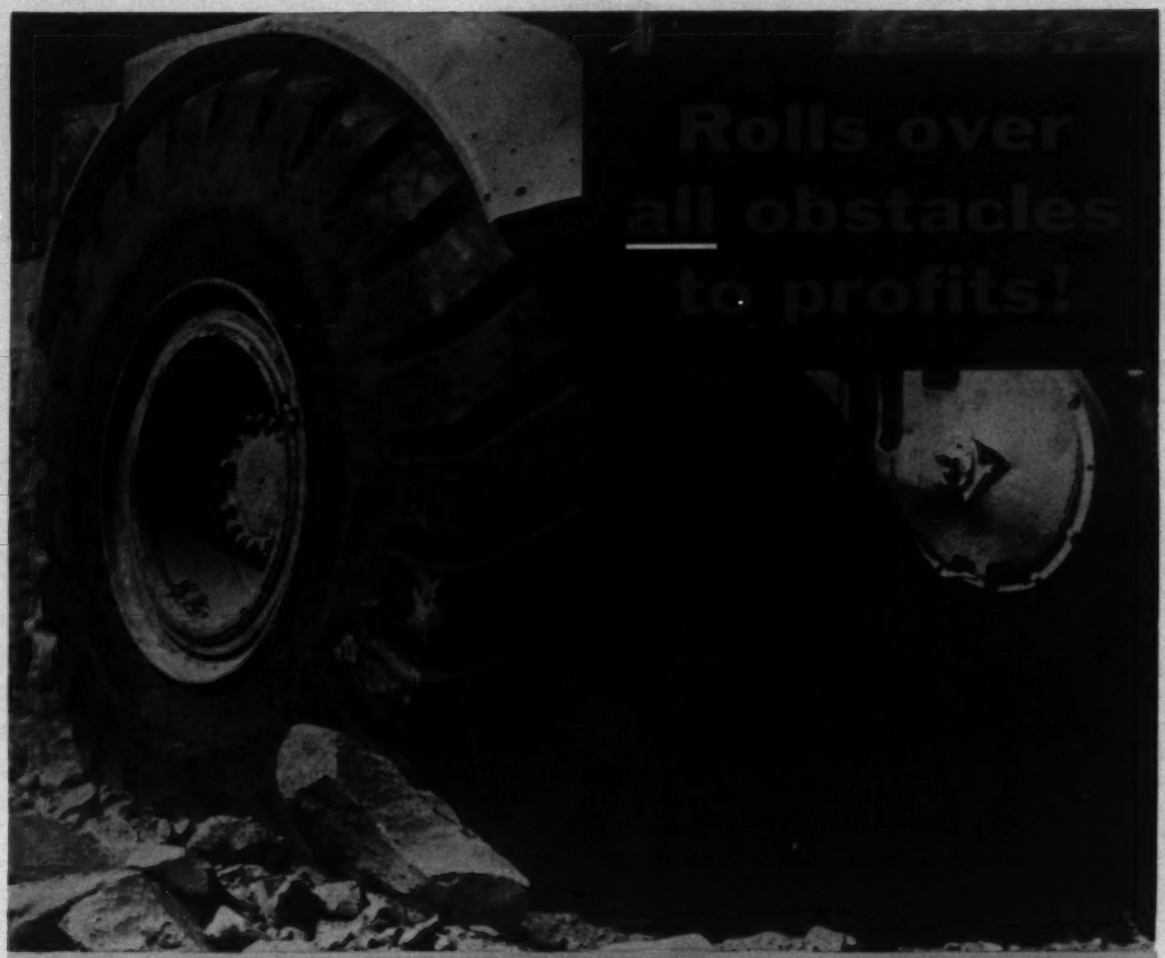

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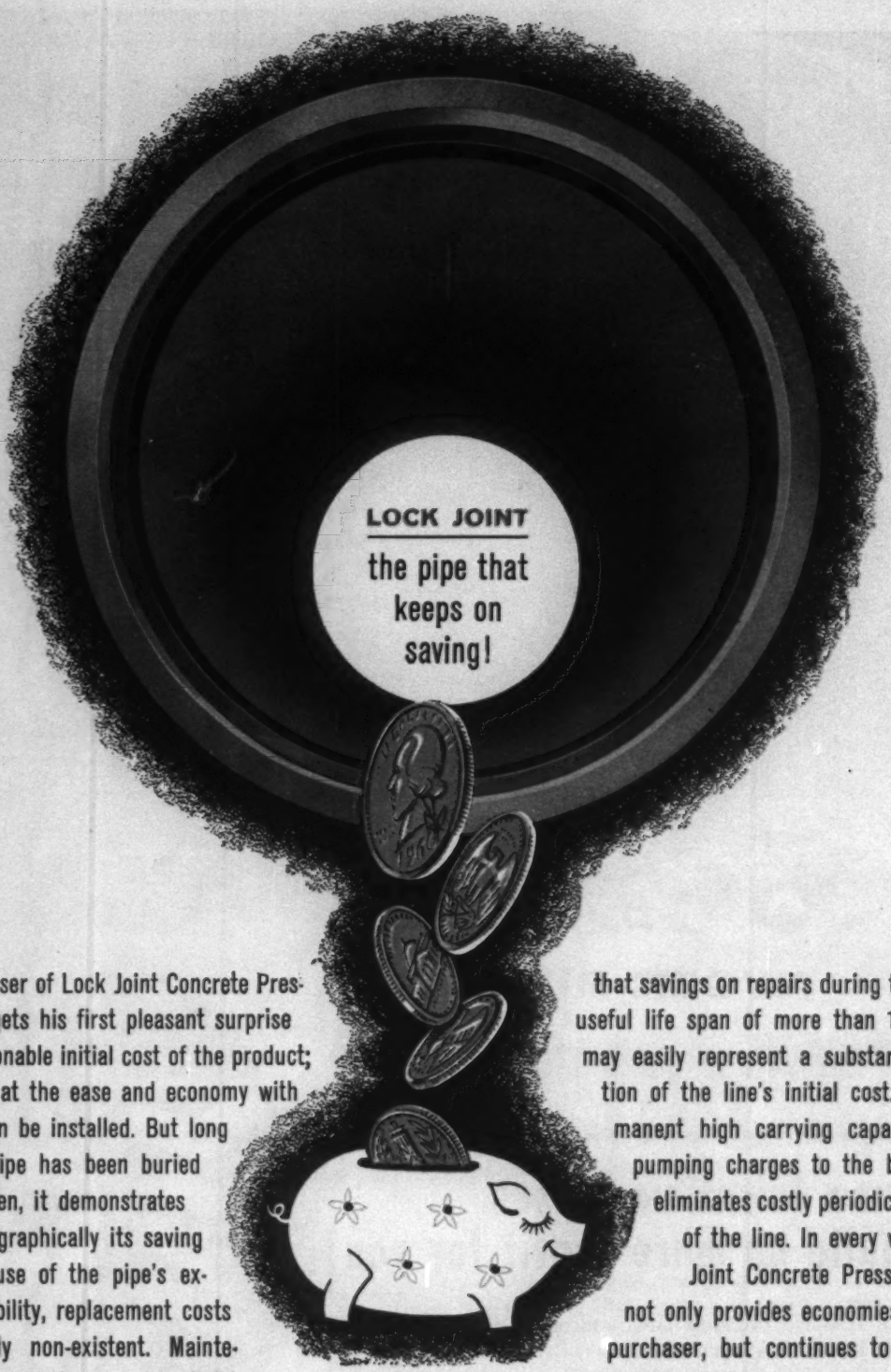

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ENGINEERING NEWS-RECORD

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Back Issues of ENGINEERING NEWS-RECORD *are generally available for the previous six months. Semiannual indexes will be sent on request.* ENGINEERING NEWS-RECORD *is also indexed in Industrial Arts Index and Engineering Index.*

THE CONSTRUCTION WEEK

HIGH-VOLTAGE SPENDING—Investor-owned electric companies will spend $143.3 billion on new construction in the next 20 years, according to the Edison Electric Institute. Power-producing capability will be doubled by 1970 at a cost of $52 billion, and by 1980 annual construction expenditures will run around $12 billion—nearly four times the planned outlay for 1960.

ROAD TO THE GOVERNOR'S MANSION—Chances are good that AGC president John A. Volpe will be the next Governor of Massachusetts. He was nominated by the Republicans last week. (His opponent hasn't been picked yet. Incumbent Democrat Foster Furcolo will not seek a second term; he's running for the Senate.) Contractor Volpe, who was an effective and popular public works commissioner, will probably make the state's bogged-down road construction program a campaign issue.

NO MORE BITTER BIDDERS—The number of international controversies over contract awards for heavy power equipment here should decline. Bureau of Reclamation has a new form for evaluating eligibility for the 6% price differential offered to U.S. manufacturers under the Buy American Act. Bidders will indicate on the form what percentage of equipment components was made abroad. Anything under 50% is eligible for the differential.

A SOLID PLATFORM—Although the Democratic convention is scheduled to last only five days, some $350,000 worth of temporary construction in the Los Angeles Sports Arena is adhering strictly to the city's building code, just as if it were meant to last 50 years. "This is better building than you'll find in most tract homes and a lot of commercial buildings," says J. E. Parsons, superintendent on the job for Jacmar Grove Construction Co.

AFTER SEATON, THE DELUGE—Interior Secretary Fred A. Seaton will preside this week as the first bucket of concrete is delivered to the depths of Glen Canyon. More than 5 million cu yd of concrete will follow the ceremonial bucket to form what will be the second highest dam in the U.S.

LEFT BACK—Installation of a conveyor system at Providence's automated post office may be delayed because the subcontractor flunked a state exam. Joseph A. Mase, partner and general manager of Webb Electric Co., Detroit, holds licenses to do electrical work in 22 states, but he scored only 61½% on Rhode Island's licensing exam. Mr. Mase says he could pass another test, but the next one isn't scheduled until September. Work on the conveyor was to begin next month.

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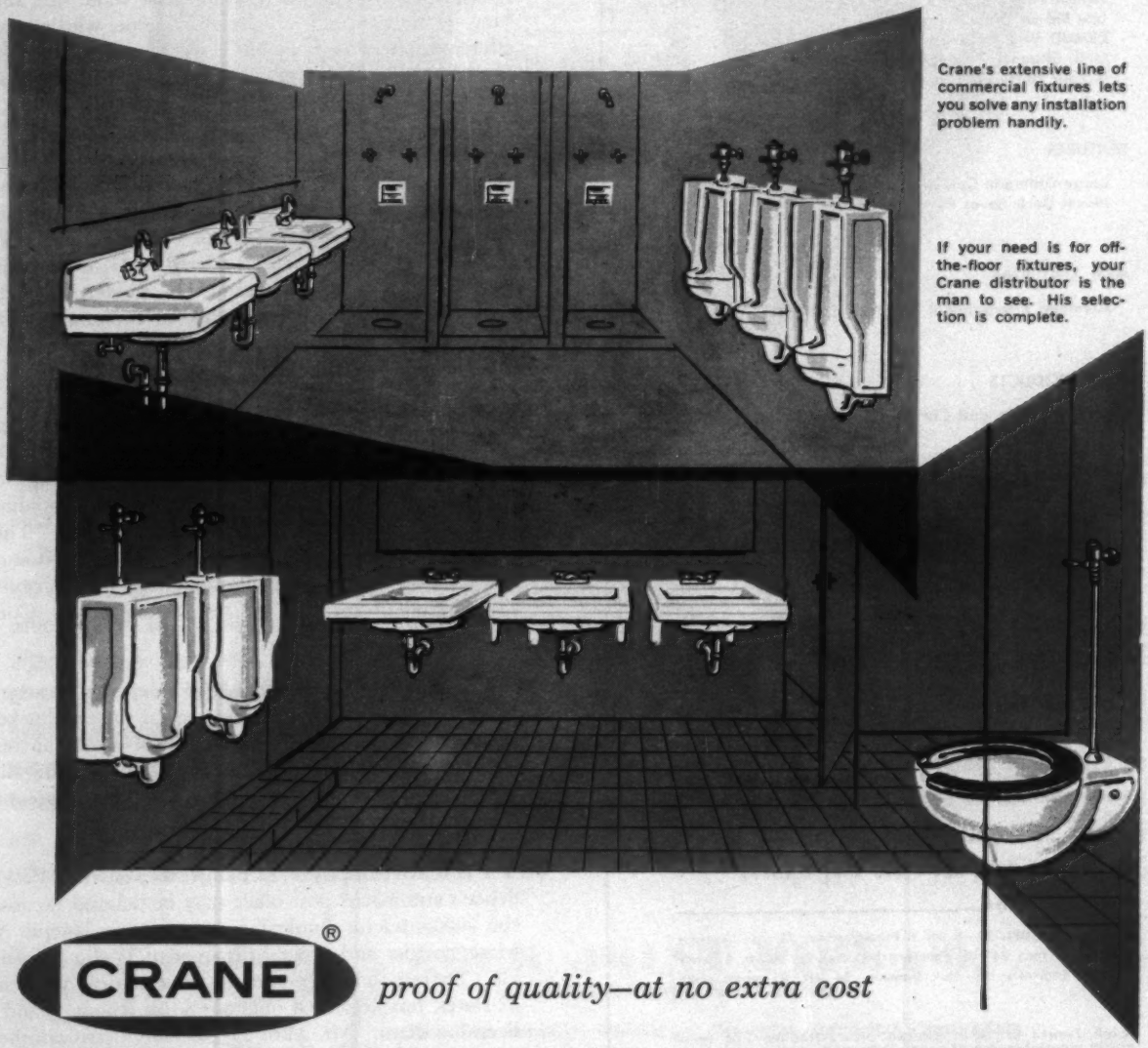

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WASHINGTON OBSERVER

- **Legislative log-jam builds**
- **Reactor licensing snags on safety**

● **Construction legislation is caught in the log-jam that's building up in Congress against a deadline** set by the Democratic convention in Los Angeles July 11.

The public works authorization bill, approved at $650 million a year ago by the House, is now up to $1.5 billion, as approved by the Senate Public Works Committee. The bill is sure to be passed, and could even go higher than $1.5 billion. Appropriations await Senate approval of the authorization bill. The House approved $1.4 billion. A veto threat hangs over the bill as it stands now, since it has five new starts the President didn't ask for.

Military construction money totaling $885 million has been passed by the House. The President asked for $1.1 billion. The Senate will add a substantial amount to finance new missile bases.

Highway authorization for ABC roads for fiscal '62 and '63 must be passed before the states can make up their own budgets, beginning next winter. The issue is whether to boost total federal aid money higher than the $925-million level for fiscal '61.

An omnibus housing bill will be passed including substantial increases in loan and/or grant funds for urban renewal, college housing, GI home loans, Fannie Mae special assistance programs, and community facilities. To lessen the veto threat, new public housing starts will be omitted. The price tag could be $1.2 billion to $1.6 billion.

School construction—in conference committee—hinges on many factors; outcome uncertain.

On-site picketing bill looks dead.

Aid to depressed areas is dead.

Likely to pass if time permits: $140-million Amistad Dam on the Rio Grande; Chantilly Airport sewer ($28 million); $100 million in loans to cities for mass transit facilities.

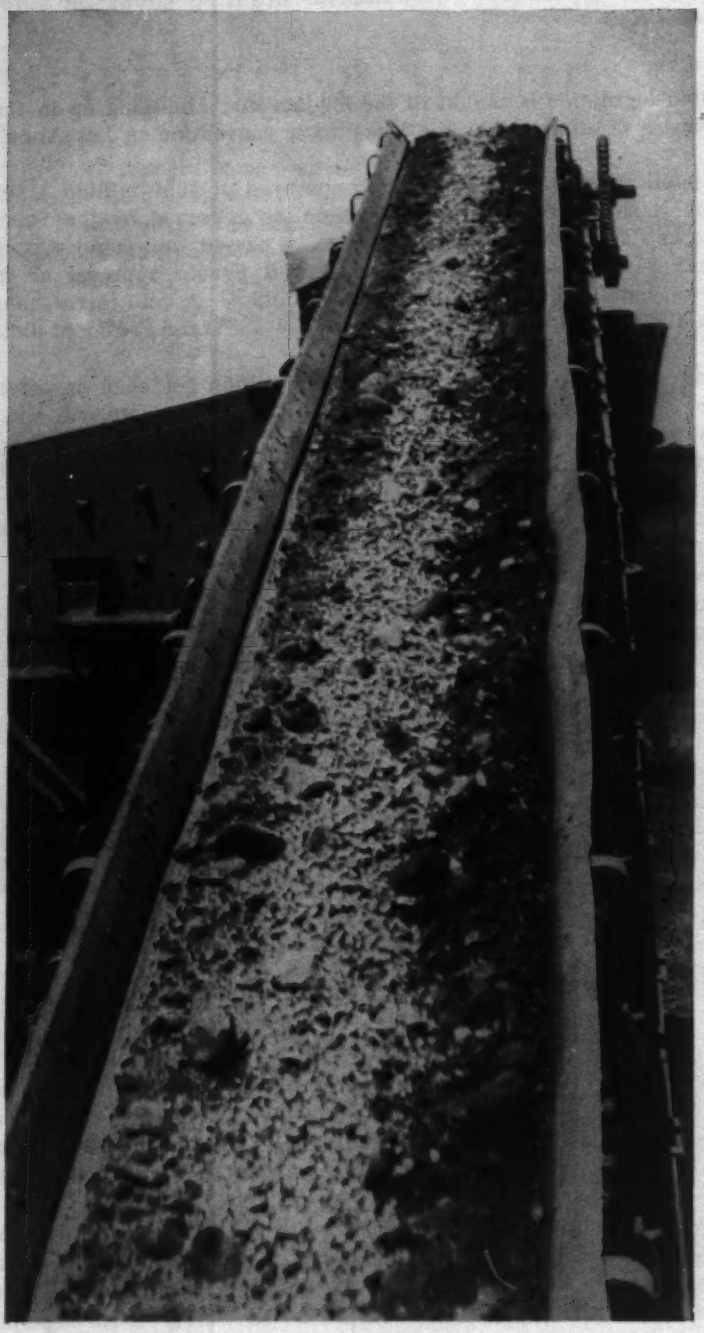
—

● **An estimated $300 million in nuclear power plant construction could be held up** if a legal battle over safety precautions goes against the AEC. The commission was handed a setback last week by a U. S. Court of Appeals in a case involving the $55-million Enrico Fermi Atomic Power Plant, almost completed near Detroit.

The court ruled that AEC must certify that a reactor will operate safely before it issues a construction permit. Up to now, AEC has allowed construction to begin in order to save time and to give the company the construction years to sharpen their evidence on the safety of their plant. AEC still can withhold an operating permit on safety grounds even after construction is complete.

But this procedure has now been successfully challenged by three labor unions. If the court's decision is allowed to stand, AEC will have to review both its licensing procedures and safety criteria for seven other plants—three under construction and four already issued "provisional" construction permits. An appeal to the Supreme Court is under consideration.

AGGREGATE HANDLING BELTS



24" conveyor belt carrying rock from crusher rolls.

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What's Ahead for Homebuilding?

● Census reports indicated a sickly '60 . . . **but . . .** ● ENR's award figures are 40% ahead of '59, so . . .

Look for a Jump in Housing Starts

A boom is developing in housing. That despite the Census Bureau's gloomy reports on housing starts, which indicate 1960 will be a poorer year than 1959.

Throughout 1960 ENR's Construction Scoreboard has shown contract awards for housing to be higher than those of the same period in 1959. The margin over last year's housing figures have ranged from a low of 18% in April to a high of 81% in January. The total value of contracts awarded for the first 23 weeks of 1960 is $2.73 billion, 40% higher than for the first 23 weeks of last year.

The Census Bureau's latest report on housing starts, as of the end of April, 1960, shows 361,000 for the first four months. The bureau's figures for the same period in 1959 show 433,000.

The next release of housing starts from the bureau, due next week, should show a marked increase, not only because of new methods of calculating housing starts, but because it should reflect contract awards listed by ENR.

A check on 20 of the large housing projects picked at random from the ENR list of housing contracts awarded since the beginning of the year support ENR housing figures.

The projects checked are spread throughout the country and range in size from a $1.3-million, 80-home project to a $20-million development of 500 homes. Most of these jobs are in the hands of developers, from whom a contract announcement is really more of an announcement of intent to build. Most of them make their own construction schedules.

Work at a normal pace or faster than normal was reported by 75% of the builders. Nine out of ten reported satisfactory mortgage commitments and either commitments or assurances of commitments for future construction.

An improved mortgage situation is responsible for much of the increased construction activity. Savings and loan association managers in the Midwest, East Coast and New England areas report definite signs of easier interest rates. Discounts are declining in southern and western areas.

One of the results of a recent survey by the Federal Housing Administration is a prediction of an easing of money conditions in the conventional mortgage field. FHA forecasts that the 6.3% interest rates at which mortgages have been running for the past several months are at the peak, that rates will drop.

Housing and Home Finance Agency Administrator Norman P. Mason says that the last half of 1960 will produce more housing units than the last half of 1959 and more money will go into them.

ENR coverage of contract awards has shown a steady rise in housing this year. There was a slight fall-off in May, but a heavy influx of contracts in June will counter this.

ENR's spot checks of housing projects around the country have shown that most builders are backing up their intentions with construction.

In the Cleveland area developers report brisk sales of their homes and mortgage commitments to take care of all the construction they plan for 1960.

Darden Building Co., Inc., of Bedford, Ohio, is building 238 homes in its $3-million Heather Hills development. The Firm has completed 40 this year and has 10 more in various stages of construction. It plans to complete 90 to 100 this year and finish the project in 1961. It has mortgage commitments for all its homes.

Alex Fodor Realty Co., of Cleveland, has commitments for all 100 homes it is building in its $2-million Brook Park, Ohio, development. They're working at faster than normal pace and expect to finish in September.

In Seattle, Baugh Construction Co. plans to begin work in 90 days on 14 apartment buildings costing $3 million. Mortgage commitments are secured and completion is set for late 1961.

Three builders queried in the Los Angeles area report no difficulty in getting mortgage money, except that prices were a bit high.

Los Altos Development Co., Long Beach, Calif., which announced in February a contract for 232 frame, stucco houses in La Puente, reports that framing is progressing at the rate of 12 houses a day. The houses are part of an 800-house project that is scheduled for completion this year.

Hamilton Construction Co. of Detroit has 70 units under construction of a 162-unit, $2.3-million project and expects to complete all of them by June, 1961. On another of its projects, 50 homes of a 138-unit, $2-million job are completed and the project should be done by early 1961. The firm has commitments already on 90 of these homes.

Hutcheson-Richards Enterprises, of Dallas, has nearly completed the first two units, 70 apartments, of a 120-apartment, $1-million project.

M. T. Broyhill & Sons Corp., of Arlington, Va., has completed 64 homes on a $2-million job in Langley, Va., and started in on a 62-lot project.

(Turn the page)

It has positive commitments and is working ahead of schedule.

Builders around Dallas, Columbus, Chicago, Detroit and Cincinnati report similar progress. For most of them, speed of construction depends on the market for houses. This has slowed only about 15% of the builders surveyed, while 25% consider the market to be quite good.

The Census Bureau's next figures on housing starts, those for May, will be collected under a new system that will get a more accurate picture of the country's housing activity.

Under the old method, one based on methods of the Bureau of Labor Statistics, the Census Bureau relied heavily on reports of building permits issued.

The new technique depends greatly on samplings of actual construction across the country. It shows a surprisingly large number of dwellings built without permits, both in areas where permits are required and where they are not.

The bureau's revised system of counting starts shows that 1,553,100 new homes were begun last year, 13% more than the 1,378,500 officially reported. These figures for 1959 would make that year better than the most active housing year on record, 1950. But 1950 was probably undercounted, too.

Every government construction series that includes residential building will be revised. One of the first to show the results of the change will be the monthly construction volume estimate of the Department of Commerce.

The new start-counting process will take about 10 days longer to accomplish. Bureau figures will come out in the fourth week of June, instead of the second week. The bureau hopes to trim this time lag gradually.

NSPE hears of . . .

Schooling, Consulting Studies

"There may be a possibility that some of our youngsters are seeing the future more clearly than engineering teachers. Perhaps the drift away from engineering classrooms to physics and mathematics departments comes from their estimate of the need for a more fundamental approach to engineering problems."

With this challenge to engineering educators, MIT's Dean Gordon S. Brown told of a general drop-off in engineering students and explained what the Massachusetts Institute of Technology proposes to do about it. He spoke at the annual meeting of the National Society of Professional Engineers in Boston last week.

"There is abundant evidence that careers in engineering are not held in high esteem by a sufficient fraction of the bright youngsters in high school," Dean Brown said. In 1954 about 70% of freshmen were interested in engineering; by 1959 this had declined to 46%; and in civil and mechanical engineering the relative interest declined more than 50% in that five years.

"This drop-off occurs in the face of a clear need for more engineers," he said.

"We have a real challenge: To point clearly to the exciting career opportunities . . . and to weave a strong scientific base into an educational program that is not narrow, that will exhibit the purposefulness of the engineer in putting science to useful, practical ends."

MIT has put a Ford Foundation grant to work on reshaping all its engineering curricula. But Dean Brown said that the civil engineering department has perhaps the most difficult task:

"For several years the esteem which young students have held for civil engineering has been steadily declining."

Next year civil engineering at MIT will offer a new blend of the physical sciences, the life sciences and the social sciences, supported by increased laboratory work and new professional electives. "To strengthen our students' grasp of down-to-earth aspects of engineering we are initiating many new (programs to) provide an experience in engineering like the internship of a young doctor of medicine," said Dean Brown.

Another speaker, a former Commissioner of Public Works in Boston, offered further reason why civil engineering has lost its luster.

Employment in the municipal field, said George G. Hyland, suffers from inadequate salaries; few advancement chances; fear of politics; civil service regulations.

"In the past 20 years not one graduate engineer entered service of the (Boston) Public Works Department," said Mr. Hyland.

Rep. Gordon R. Scherer (R., Ohio) told the NSPE meeting that the highway investigating committee on which he serves—as a minority member—is going to investigate private engineering costs.

"There is a lot of preconceived sentiment for reduction or elimination of private consultants in highway work. We must insist that before any action is taken, an unbiased study be made of highway engineering costs by government agencies and by private engineering companies," said the congressman.

Agadir Quake Report

Data, conclusions will go to architects and engineers

The forthcoming report by a team of earthquake experts that investigated the structural damage of the Agadir earthquake (ENR Mar. 24, p. 57) will discuss all technical aspects of the catastrophe, which killed more than 10,000.

The report will do a job seldom done before—make the data and conclusions of an earthquake investigation available to architects, engineers, building officials and others concerned with seismic-force design.

At their recent West Coast meeting the four experts decided that the report would contain:

- A survey of structural damage and an analysis of the nature of the failures.
- Detailed data on the seismology and geology of the area.
- A section on building code provisions on earthquake and lateral-force design.

R. W. Clough, Professor of Engineering at the University of California, will edit the report, which should be available this fall.

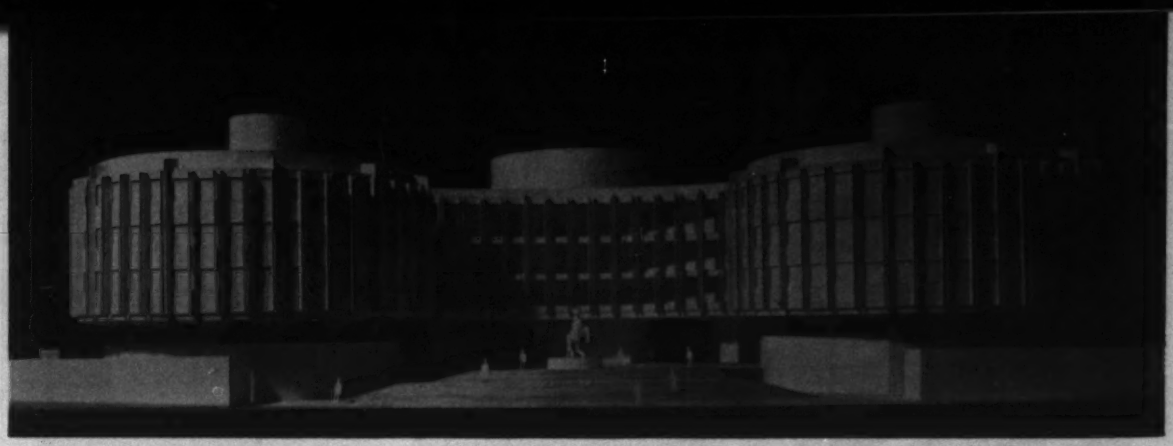
Appearing before the Structural Engineers Association of Southern California, three of the four team members said that seismic forces had generally been ignored in the design of the city's buildings. This was true even of the newer structures, which still performed better than the antiquated bearing-wall construction in the old sections.

On the program were W. G. Kirkland, chief engineer of the American Iron and Steel Institute; R. W. Binder, chief engineer of Bethlehem Steel Co.'s Pacific Coast Division, and Prof. Clough. A fourth member, T. R. Higgins, Director of Engineering and Research of American Institute of Steel Construction, did not appear.

Despite the tremendous damage, the Agadir quake was relatively mild in terms of energy release. It registered only 6 on the Richter scale, which is used by the U. S. Coast and Geodetic Survey. Each Richter unit is 63 times as large as the one below it—i.e., a Richter 7 is 63 times a Richter 6.

Thus the Agadir quake was less than one ten-thousandth the energy magnitude of Richter 8.5 recorded in the largest tremor of the recent Chilean quakes. Richter 8.5 corresponds to about 7 x 1,018 ft-lb of energy.

In terms of damage-intensity, however, the Agadir quake was severe. Measured on the Mercali scale, in which 12 represents total destruction, the Agadir quake registered 9 to 11 in different sections of the city. There are no damage intensity records yet available for the Chilean quakes.



Concrete Reigns in Monumental Building

Philadelphia's serpentine-shaped Police Administration Building will thoroughly exploit the architectural and structural uses of concrete.

Precast concrete wall panels will support ribbed floor slab sections, precast in trapezoidal-shaped units to fit the circular floor areas of the two wings. At the main floor cantilevered girders, precast and post-tensioned, will carry these 35-ft-high bearing panels, which support two floors and the roof.

General contract for construction of the $4.5-million structure was recently awarded to Sovereign Construction Co., Ltd., of Fort Lee, N. J.

Architect is Geddes, Brecher & Qualls; structural engineer, David Bloom. Both are Philadelphia firms. A. E. Komendant, New York City, was consultant on precast work.

From a next door roof, TV cameras keep . . .

passers-by posted on construction progress.

Sidewalk Superintending Made Easy

After years of neck craning, sidewalk superintendents now can watch at close range the activities of steel workers high atop a skyscraper. Telephone and closed-circuit television have teamed up to bring passers-by reports on construction activities at Western Electric Co.'s new office building in Manhattan.

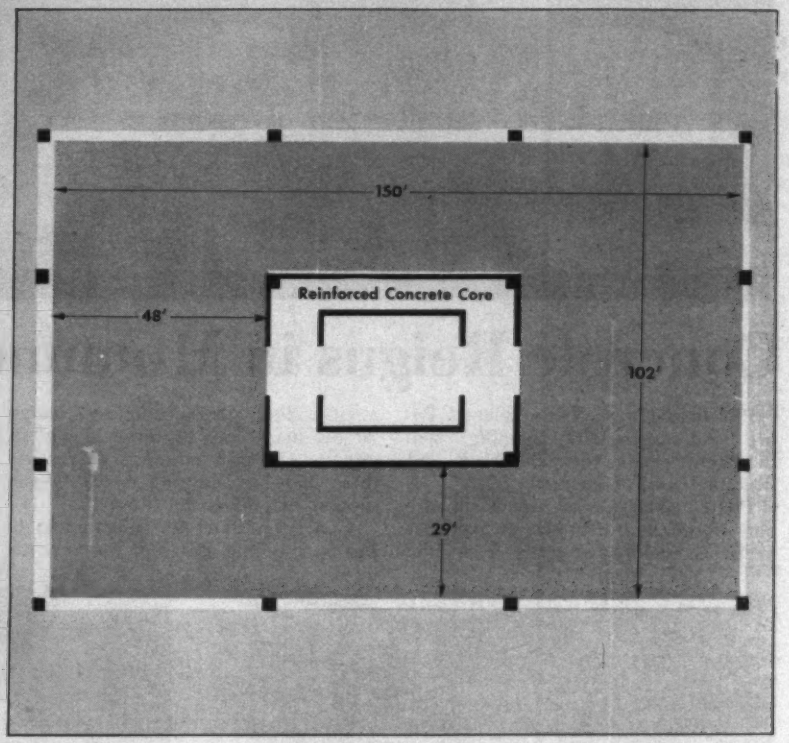
Western Electric mounted a television camera on the roof of a building diagonally across from the construction site. There, the camera commands a good view of the work.

Several times a day a television operator follows beam-walking steel men putting together the building's skeleton. When not manned, the camera is focused on the building and locked in position, but remains in operation.

Down below, two "Sidewalk Superintendents' Tele-Centers" give the man-in-the-street a close-up of what's happening 390 ft up. A bank of 20 handy telephones bring passers-by a taped report on construction progress.

The telephones, which have been used on other Manhattan building projects, were installed during early stages of the job. The TV refinement went in only after the project grew too tall for comfortable gaping. Western Electric hopes to continue the telecasts when work moves inside the structure.

Western Electric, the manufacturing and supply unit for the Bell System, is a subsidiary of American Telephone and Telegraph Co. The project is scheduled for completion early next year.



A440 steel frames 16 stories . . . in long-span bays for 13,000-sq-ft column-free office areas.

From A440: Long Spans at Low Cost

Structural engineers expect high-strength steel to lengthen spans and even to cut framing costs on a 16-story, $8-million office building in Portland, Ore., scheduled for construction start early next year.

Comparing a design by the new A440 steel with a more conventional design by ordinary A7 structural steel, Portland engineers Cooper and Rose estimate a weight saving of more than 250 tons. And despite the slightly higher unit cost of A440 ($20 per ton over the cost of A7 steel) they estimate a cost saving of $25,000.

A low alloy steel containing from 1.1% to 1.6% manganese, and smaller quantities of silicon and copper, A440 has a yield point of 50,000 psi—50% higher than A7 steel. The engineers designed beams for a working stress of 30,000 psi. They used a straight-line formula recommended by T. R. Higgins, Director of Engineering and Research of the American Institute of Steel Construction, for the column design.

$$f_a = 30{,}000 - 152\,\frac{L}{r}$$

Columns had L/r ratios ranging from 35 to 50.

The building, 153 x 104 ft in plan, is divided into nine rectangular bays by the column grid. Two of the eight exterior bays are about 51 x 41 ft, the other six are about 51 x 32 ft.

Floor beams spanning the 51-ft bays of the building's length, are fabricated by splitting 24WF sections and welding web plates between the tees. Result is a "split wide flange," or Vierendeel beam, 36 in. deep. Air ducts and other utility lines pierce the beams through the open webs.

Cellular steel units, topped with concrete fill, span between the floor beams, which are spaced about 9 ft apart.

Spandrel beams are welded tapered sections, varying in depth from 20 in. at columns to 28 in. at mid-span. Floor girders are 24-in.-deep prismatic sections. Like the floor beams, spandrels and girders will be field-bolted.

Typical floor height is 13 ft 6 in.; ceiling height, 9 ft 6 in. The floor framing fits into a 4-ft space between ceiling and floor above.

The engineers designed the one interior bay, the central area housing elevators, stairs, vertical ducts and rest rooms, with reinforced concrete framing. Shear walls are designed to resist lateral forces. Wind rather than seismic forces governed this design.

As an added safety provision, the steel frame must be designed capable of resisting one-quarter of the total lateral design load.

The contractor will be able to build the core before erecting the steel. A modified slip-form method will probably be used.

A three-level basement, providing parking space for 300 cars, is framed with concrete waffle slabs. Steel columns with channel shear heads cut the superstructure spans in half for the waffle-slab bays.

Architects Skidmore, Owings and Merrill based their floor plan on a 4-ft.10-in. module.

Tenants can arrange their partitions in the large unobstructed areas to suit individual needs.

Aluminum mullions and spandrel sheathing, tapered top and bottom, divide the exterior walls into panels of glass. The glazed tower will occupy only 40% of the 200-ft-sq downtown site. This leaves room for a spacious landscaped plaza bordering the building.

Bid call is scheduled for Jan. 1961, with completion by April 1963.

Standard Insurance Co. of Portland is the owner.

Transit Plan Put Off

Program for bay area won't be ready for vote this year

Officials of San Francisco's five-county bay area rapid transit district, who had hoped to wrap up a billion-dollar transit program in a November bond election, admitted officially last week what has been known for some time—their plan won't be ready to go before the voters this year.

Instead, San Francisco Bay area commuters will have to wait at least until early 1963 for a satisfactory program to be engineered, approved, financed and put under contract.

Most of problems at this point are political, with the usual economic overtones. But there is also the nagging possibility that the Marin County transit line across Golden Gate Bridge, a key link in the proposed system, may not be technically feasible.

Engineering consultants Parsons-Brinckerhoff-Tudor-Bechtel think they have solved the money problem with a revised plan submitted this week.

The engineers' plan chops $274 million from an earlier estimate of $1.19 billion. This has been achieved by eliminating 34 miles of track from the original 132-mile system; building elevated instead of subway lines in certain urban areas; eliminating some grade crossings by blocking off roads; and erasing about half of the originally planned Market Street subway line.

But the $916-million price tag the revised system would bear is still $241 million above the legal debt limit of the five counties involved. District engineers think they could finance the project by stretching out the construction period for several years.

These figures exclude the approximate $120-million cost of the proposed San Francisco-Oakland Bay tube, which is to be financed solely out of revenues from the Bay Bridge.

The district's political problems revolve about whether boards of supervisors in the counties of San Francisco, San Mateo, Alameda, Contra Costa and Marin will approve a final transit plan for the entire area, permitting citizens of those counties to vote on a bond issue to finance the project.

Still in the background is the long-awaited Steinman report (ENR Jan. 21, p. 26), which will deal with the feasibility of running a rail line across a deck added to the Golden Gate Bridge. David B. Steinman of New York City is expected to make his report later this month. Even if he declares it feasible to run lines across the bridge to Marin County, approval of Golden Gate Bridge directors would still be required to make changes in the bridge.

Around the World . . .

• **Planning ahead—way ahead**—A $25-million plan to extend sewerage facilities of the Hampton Roads Sanitation District Commission provides for the area's needs up to the year 2000. Six additional sewage disposal and treatment systems should do it according to New York consultants Buck, Seifert & Jost. Financing will be easier now that Virginia's General Assembly has raised the Commission's $10-million debt limit.

• **New plans for Amistad**—A revised proposal for the Amistad Dam to be built on the Rio Grande by the U. S. and Mexico was approved by a House Foreign Affairs subcommittee. The bill calls for the U. S. to build a 100,000-kw generating plant, instead of permitting private, cooperative or local public systems to lease and develop power facilities.

• **Beverly Hills offices**—A $13.5-million office structure with 600,000 sq ft of floor space will be constructed in Beverly Hills, Calif. The building will have eight tower floors, a mezzanine, penthouse, five sub-levels and a roof-top heliport. Plans call for reinforced concrete framing and a marble and glass curtain wall. S. Jon Kredman & Co., Beverly Hills, is the investment-building firm for the project.

• **Nameless named**—Chicago's $35-million Exposition Center (ENR Apr. 7, p. 28) will be officially known as McCormick Place in honor of the late Col. Robert R. McCormick, editor and publisher of the CHICAGO TRIBUNE, which advocated construction of such a structure over 30 years ago.

• **A bargain in fish**—American Viscose Corp. is paying $30,000 of a $154,777 fine levied against them for dumping waste that allegedly killed a half-million fish last year in the Shenandoah River. The Virginia State Water Control Board settled for the cost of restocking the river.

• **Water for Hong Kong**—Further confirmation of the Hong Kong plan to accept water from Red China comes with the report that a $3-million contract for steel pipe for water-supply purposes has been signed by the colony. The pipe will be used on a transmission line that will bring water from China into Hong Kong's Thai Lam Chung Reservoir.

• **Power for Red China**—Power development has been given top priority in Red China's race to gain economic stature, according to a German engineer with a trade mission in Peking. During 1959 a total capacity of 6 million kw was added to its installed potential—4.7 million kw thermal and 1.3 million kw hydroelectric. During the next 10 years emphasis will be on the construction of bigger-than-100,000-kw power plants, he reports.

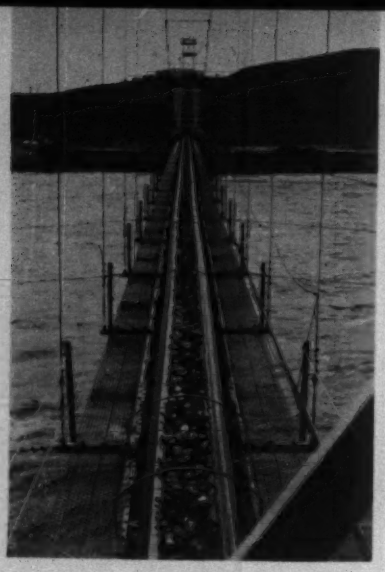
• **Cloverleaf hospital**—A $4-million addition to St. Luke's Hospital in St. Paul, Minn., will be built in the shape of a cloverleaf. The new three-story structure will include surgery and X-ray rooms, a dining room, auditorium and chapel; three circular nursing units, each with a 22-bed capacity, attached to the buildings in a clover pattern.

• **New surface for old pike**—The Pennsylvania Turnpike Commission will resurface an additional 28 miles of pavement on the original turnpike this summer. Estimated cost of the project is $2 million. When complete, approximately 25% of the original portland cement concrete pavement will have a bituminous concrete surface.

• **Pipeline for B. C.**—Gas Trunk Line of British Columbia, Ltd. has announced plans for a 250-mile pipeline system tieing newly found gas reserves of northern B. C. to existing transmission lines. Subject to governmental approval, the new 30-in. line will run from Fort Nelson to Taylor. Estimated cost of the project's first stage is $100 million.

• **Wells Dam on way**—Wells Dam on the Columbia River came one step closer to construction when Puget Sound Power & Light Co. agreed recently to finance preliminary engineering. Contract provides that Bechtel Corp. of San Francisco get the job. The proposed 424,000-kw project lies between Rocky Reach and Chief Joseph dams.

• **Back to the city**—A $15-million business complex—a hopeful rebuttal to outlying shopping centers—will cover two city blocks in Jacksonville, Fla. The project will include a 14-story office building, a five-story department store, a five-story medical building and a six-level garage.



Dambuilders Bridge River With Aggregate Conveyor

Why is it the aggregate pit seems to be always six miles from the batch plant and on the other side of the river to boot? That's the situation at Ice Harbor Dam and Guy F. Atkinson Co., San Francisco, contractor for the north-shore navigation lock, spillway bays, and fish ladder, is delivering its aggregate via a 930-ft suspension conveyor spanning the Snake River.

Steel towers, 100 ft high, support the conveyor, which supplies 660 tons an hour to the north-short batch plant. Bottom dumps feed sorting silos on the south shore, where the belt is loaded.

The Corps of Engineers' $130-million, multipurpose Ice Harbor project is near Pasco, Wash., on the Snake River.

Los Angeles Maneuvers To Avoid Water Shortages

While the Los Angeles Department of Water and Power predicts no water shortage for the city, it reports that runoff in the High Sierra watershed, which supplies the Los Angeles-Owens River Aqueduct, will be only 54% of normal.

To offset this, pumping is being resumed for the first time in 26 years at wells in the Owens Valley. The Owens River system normally supplies about 60% of Los Angeles' water.

The Metropolitan Water District's Colorado River Aqueduct provides about 20% of the city's needs. The Department of Water and Power has "earnestly requested" that MWD reject all applications for annexation to the district in the event the U.S. Supreme Court adopts the recommendations of the controversial Rifkind Report (ENR May 19, p. 25) which would restrict MWD's future withdrawals from the Colorado River and create serious water shortages in southern California.

Low Bid in on Oroville Project

An acceptable low bid of $51.2 million has been submitted for California's Oroville-Wyandotte Project on the South Fork of the Feather River.

Actual award of the contract to a five-company combine headed by Henry J. Kaiser Co., Oakland, Calif., is delayed, pending sale of a $62-million bond issue authorized by local voters in 1958. Bid opening is slated for next week and, interest rates allowing, construction will start this summer.

Bidding with Kaiser are Raymond International, Inc., New York (see cover story, p. 44); Macco Corp., Los Angeles; Peter Kiewit Sons and Coker Construction, Inc., both of Omoha.

Under a 50-year contract, Pacific Gas & Electric Co. will buy power from the Oroville-Wyandotte Irrigation District at the rate of $3.16 million per year. This revenue is expected to cover all costs of building and operating the comprehensive project. The PG&E-OWID contract is also contingent on a successful bond sale.

The South Fork project, originally scheduled to get under way last year, was held up when no bids were submitted on four of nine separate bid schedules devised by Bechtel Corp., San Francisco, OWID's consultants (ENR May 21, 1959, p. 17).

This year's acceptable bid by the joint venture was on the basis of single over-all bid requirement. A Bechtel spokesman called it "a better arrangement" and expressed confidence that the project would finally get under way.

A significant illustration of cooperation between a local agency and private power, the Oroville-Wyandotte Project will supply both water and power without federal or state participation.

The watershed to be developed is in the northern Sierra Nevada where the average annual rainfall is 70 in.

Six dams three powerhouses, 17 miles of tunnel, and 23 miles of canal will produce 86,500 kw of power and store 163,000 acre-ft or irrigation water (ENR Apr. 9, 1959, p. 26).

EBMUD Will Build Camanche Dam

California's East Bay Municipal Utility District has approved construction of Camanche Dam on the Mokelumne River. Bechtel Corp., San Francisco, will design the dam, to be located in San Joquin County, 10 miles below Pardee Reservoir. Plans call for an earthfill, 155 ft high that would impound 355,000 acre-ft and cost an estimated $38.2 million.

The Senate Public Works Committee has recommended that the federal government contribute funds to EBMUD in proportion to the flood control benefits that would accrue from construction of Camanche. If flood control features, as recommended by the Corps of Engineers, are included in the project, reservoir capacity would be increased to 418,000 acre-ft.

The committee recommendation in effect, authorizes a study to be made and a federal contribution to be agreed upon between the Army and EBMUD.

The main dam, according to Bechtel engineers, will be 2,540 ft long with earth dikes extending three-and-one-half miles to the south and east in low-lying areas.

Sections of the two Mokelumne aqueducts, which carry water from the Pardee Reservoir to the East Bay District, would have to be relocated or given additional protection, since they would be submerged by Camanche's reservoir.

Camanche is a major unit in EBMUD's $283-million, 10-year expansion program designed to cope with water consumption in EBMUD's 245-sq-mi service area. Consumption is expected to more than double from 153 mgd in 1959 to 340 mgd in 2000.

Chicago Bridge & Iron Wins Desalter Contract

The Office of Saline Water of the U. S. Department of Interior last week awarded a $1,246,250 contract to Chicago Bridge & Iron Co., Chicago, for construction of the Freeport, Tex., demonstration seawater conversion plant.

The desalter will use the multiple-effect, long-tube vertical distillation process to supply 1 million gpd of fresh water to the City of Freeport and a Dow Chemical Co. plant adjacent to the conversion plant.

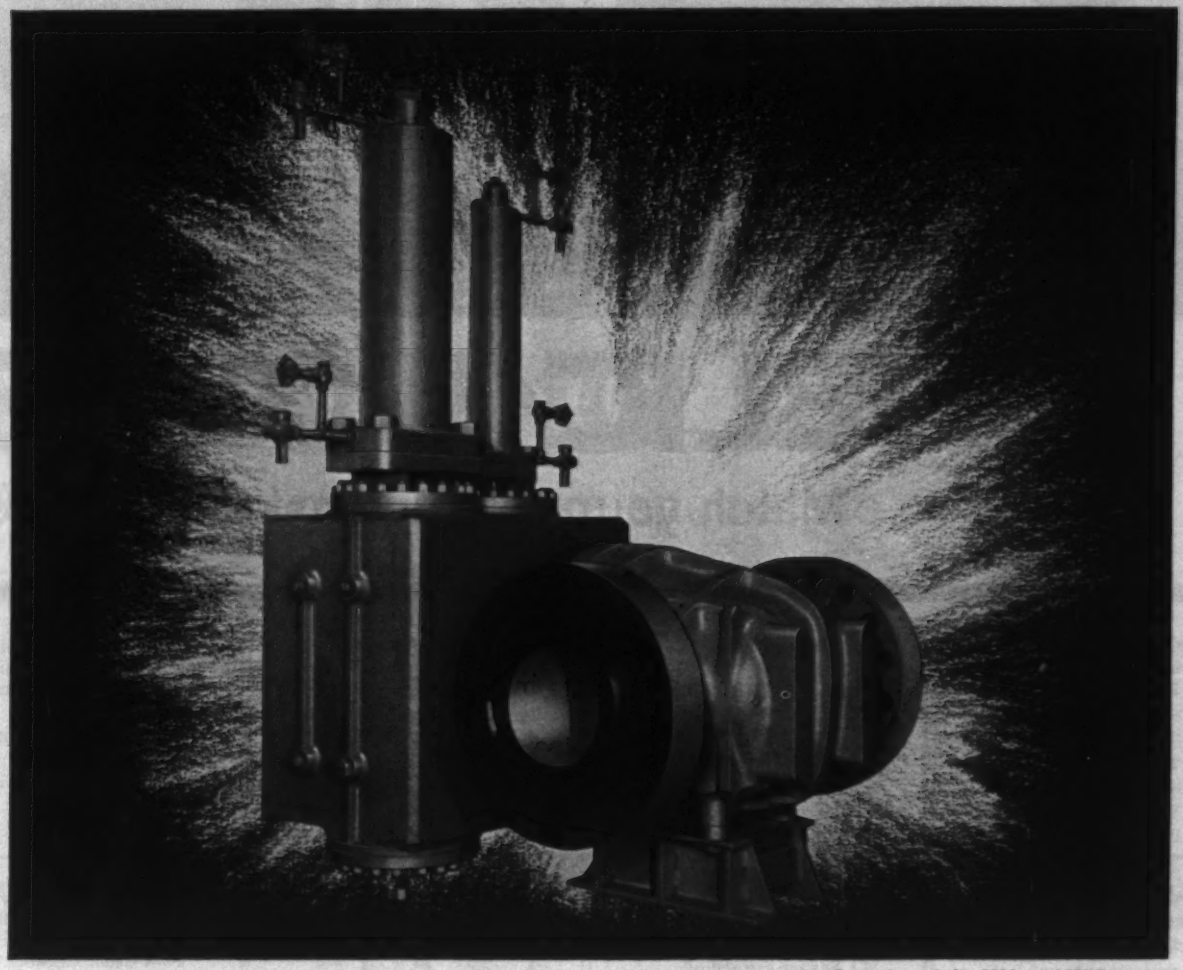
W. L. Badger & Associates, Ann Arbor, Mich., designed the seawater converter, one of five demonstrators OSW is spotting around the country.

Multiple-effect distillation involves a series of boiling chambers or effects that achieve greater efficiency by using the heat from the vapor produced in the preceding effect to evaporate more brine in the next effect.

The Webster, S. D., demonstrator will use an electrodialysis process (ENR June 9, p. 41); Point Loma, Calif., a multi-stage flash distillation unit; Roswell, N. M., a forced-circulation vapor compression distillation unit; and somewhere on the East Coast will be a still-unselected freezing process.

ALLIS-CHALMERS

A-1230



Rotovalve unit for 2700-psi, 1050 F service.

A must for nuclear reactor service . . . valves that

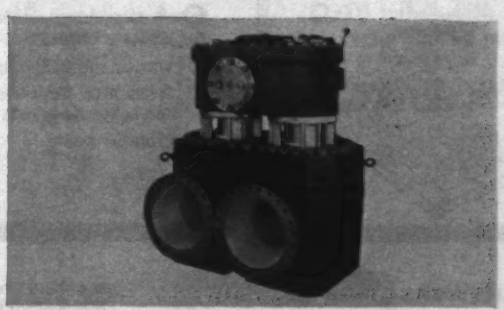
seat tighter with use

***Rotovalve* units accurately control or shut off** in high-temperature, high-pressure reactor applications. Units feature lantern ring with double packing, pressurized with the line fluid or purged to a bleed tank at lantern ring.

One example of current manufacturing is a 10-inch *Rotovalve* unit for operation at 2500 psi, 2500 F. Also being engineered is a 12-inch size for service at 4000 psi, 4000 F. Still another type combines a pair of valves within a single housing for use on dual, concentric pipes. Inner pipe carries 1400 F CO_2 to reactor; outer, 700 F CO_2 away from reactor.

Your Allis-Chalmers representative can arrange reactor valving engineered to your specific requirements. He also supplies a complete line of butterfly valves, including models for air-lock valving. *Contact him for detailed information, or write* ***Allis-Chalmers,*** *Milwaukee 1, Wisconsin.*

Rotovalve is an Allis-Chalmers trademark.



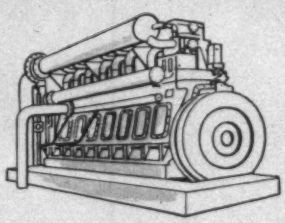
Duplex Rotovalve unit features a single operator — controls 1200-psi, 600 F steam, or 1500-psi, 300 F air. Operator allows both valves to open simultaneously, or one to open while the other closes. Saves space vital where entire reactor unit must be enclosed in radiation-proof structure.

PUBLIC WORKS

Match your wits against this team of

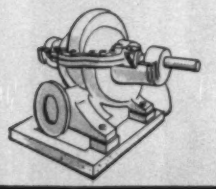
Q-1 As landmarks in water works leadership, Worthington built the:

- ☐ First duplex pump for municipal use
- ☐ The largest water works installation in 1908
- ☐ World's most efficient pumps in 1927



Q-2 The trend in large water works pumps is:

- ☐ To horizontals
- ☐ To verticals
- ☐ There is no trend



Q-3 A Worthington Tri-Power Engine operates on the following fuels:

- ☐ Sewage gas and oil
- ☐ Natural gas and sewage gas
- ☐ Butane and oil

Q-4 Greatest accessibility for service is offered by:

- ☐ Vertical turbine pumps
- ☐ Horizontal double-suction split case pumps
- ☐ Propeller pumps

Q-5 You get maximum hydraulic head flexibility from Worthington:

- ☐ Vertical turbine pumps
- ☐ Horizontal double-suction volute pumps
- ☐ Mixflo centrifugal pumps

Q-6 Sewage from a city of 1,200,000 persons produces enough gas to generate:

- ☐ 400 hp.
- ☐ 1200 hp.
- ☐ 4400 hp.

Q-7 A sewage system is capable of generating how many cubic feet of gas per person per day?

- ☐ One-half cubic foot
- ☐ One cubic foot
- ☐ Two cubic feet

Q-8 Heat recovery from jacket water, lube oil, and recoverable exhaust heat can boost engine efficiency at full load as high as:

- ☐ 37.5%
- ☐ 58%
- ☐ 76%

Q-9 Worthington pumps can be used on:

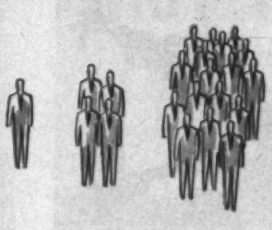
- ☐ Raw sewage
- ☐ Effluent
- ☐ Sludge

ANSWERS: (NO PEEKING)

A-1 Worthington was the first to build all three, as well as many other water works "firsts". **A-2** There is no trend. The particular application is most important. **A-3** Tri-Power engines are readily convertible to spark ignition and so handle any or all of the combinations mentioned. **A-4** Split-case horizontal pumps provide most accessibility. **A-5** Worthington vertical turbine pumps offer maximum head flexibility by varying the number of stages for different head requirements. **A-6** At 600 BTU per cubic foot, and 1,200,000 persons, Worthington engines can produce 4400 usable horsepower. **A-7** One cubic foot of gas per person per day is usually used for estimating purposes. **A-8** Proper utilization of heat from a Worthington engine can make it as high as 76% efficient, as compared with 37.5% without any heat recovery. **A-9** All 3. Worthington pumps handle every liquid handling problem in sewage work. **A-10** Several suppliers—no one does everything. But Worthington handles engines, compressors, comminutors, pumps and auxiliary equipment, so a major share of responsibility can be placed in one direction. **A-11** In 1934 Worthington placed the first engine running on sewage gas in service. **A-12** Use of multi-speed pumps

PLANNING QUIZ

Worthington public works specialists



Q-10 On complex water pollution control systems, it is best to work with:

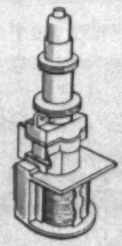
- ☐ One supplier
- ☐ Several suppliers
- ☐ Many suppliers

Q-11 Worthington produced this landmark in sewage plants—the first:

- ☐ Engine operating on sewage gas
- ☐ Agitated digesting tank
- ☐ Automatic, full-flow chlorinator

Q-12 An economical way to provide for additional pumping capacity is:

- ☐ Leave space for duplicate pumps
- ☐ Buy larger pumps initially
- ☐ Use multi-speed pumps

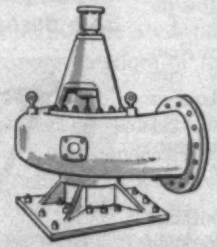


Q-13 A comminutor is most effective when installed:

- ☐ Upstream from a grit chamber
- ☐ Downstream from a primary settling tank
- ☐ At inlet to wet well of sewage lift station

Q-14 Pumps manufactured by Worthington are tested at test stand which:

- ☐ Is built over a man-made half-acre lake
- ☐ Is the world's largest
- ☐ Has capacity up to 100,000 GPM



Q-15 For Mixflo pumps, Worthington has the greatest:

- ☐ Selectivity
- ☐ Number of patterns
- ☐ Range of models

Q-16 Worthington makes which of the following?

- ☐ Clarifiers
- ☐ Filters
- ☐ Compressors

Q-17 A Worthington 36" comminutor handles:

- ☐ 0.2 to 3.0 mgd. peak
- ☐ 3.0 to 11 mgd. peak
- ☐ 2.0 to 26 mgd. peak.

Q-18 Which reason justifies paying extra for variable speed pumping units?

- ☐ Pumping rates are always matched to flow
- ☐ Surges are avoided
- ☐ Wet wells can be smaller

will cost slightly more initially, but can provide substantial increases in capacity at lowest long run cost. **A-13** At inlet to wet well of sewage lift station. For a treatment plant *downstream* from grit chamber and *upstream* from primary settling tank. **A-14** All three are right. Worthington's test stand built over a half-acre lake has a 100,000 GPM capacity and is world's largest. **A-15** Building Mixflo pumps since 1920, Worthington has accumulated the largest number of patterns and thus has the greatest selectivity with the largest number of models. **A-16** Worthington makes compressors—and matches vacuum pumps to the filters, but it does not make them or clarifiers. **A-17** The 36" comminutor handles up to 26 mgd peak. Smaller models handle as little as .02 mgd efficiently. **A-18** All three reasons justify extra cost of Worthington variable speed pump installations.

WORTHINGTON

U.S. Channels Through Canadian Waters

Channel deepening on the Great Lakes has moved into Canadian waters, although it is being performed under the supervision of the U. S. Army Corps of Engineers.

A new cutoff channel is being dug at Southeast Bend in the St. Clair River above Detroit. Dredges are removing 22 million cu yd of sand and soft clay to make a six-mile channel 700 ft wide and 27 ft deep.

A $4.4-million contract for the work was awarded March 21 by the Detroit District Engineer to a Canadian-U. S. pair of joint venturers—Standard Dredging Corp., New York City, and Canadian Dredge and Dock Co., Ltd., Toronto, Ontario. Construction began in April.

Two hydraulic dredges are doing the work. They are the 27-in. Cartagena, which was brought up from Tampa, Fla., especially for the job, and the 20-in. Shuniah.

At peak production the contractors' crew will total 150 dredgemen and laborers, with 15 Corps of Engineer employees supervising the work. As customary in this type of work, dredging maintains a steady pace, 24 hours a day, six days a week. Completion is scheduled for November 1961.

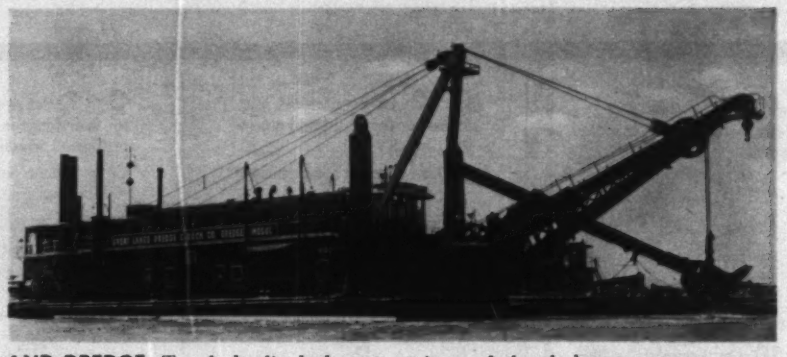
When completed, the six-mile channel will extend on a tangent from a point above Southeast Bend of St. Clair River, southwest into Lake St. Clair. The center line of the old channel which curved around to the northwest, is the international boundary between Canada and the U. S.

Since the new channel cuts across the eastern part of this bend it is located in Canadian waters. (In fact, the new channel traverses an Indian Reserve controlled by the Amalgamated Band of Walpole Island, which ceded the right-of-way to the Canadian Government.) Canada will maintain the completed channel.

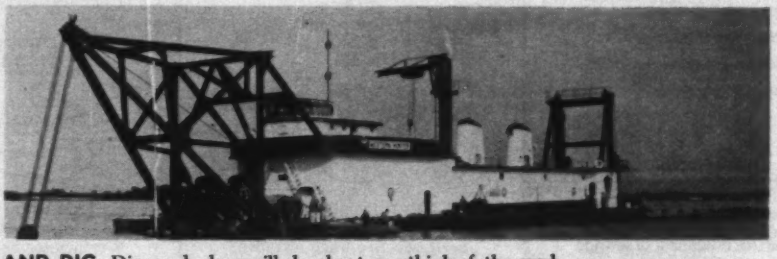
The new cutoff channel at Southeast Bend is part of the multi-million-dollar Great Lakes Connecting Channels Project started by the Corps of Engineers in 1957 (ENR July 26, 1956, p. 26). Estimated federal cost is $146 million. The work is located in five general areas: St. Marys River, Straits of Mackinac, St. Clair River, Lake St. Clair and Detroit River.

The project calls for deepening 130 miles of Great Lakes connecting channels to a minimum depth of 27 ft. It is about 40% complete. Completion date from the standpoint of navigation is scheduled for June 1962. Considerable work will still remain to be done at that time in the Straits of Mackinac, St. Marys River and Lake St. Clair, but it will not adversely affect the use of the deepened channels.

AND STILL THEY DRILL—Work began in '57, will take to '62.



AND DREDGE—Two hydraulic dredges are at it round the clock.



AND DIG—Dipper dredges will do about one-third of the work.

All construction contemplated in the channel deepening program will be finished by June 1962.

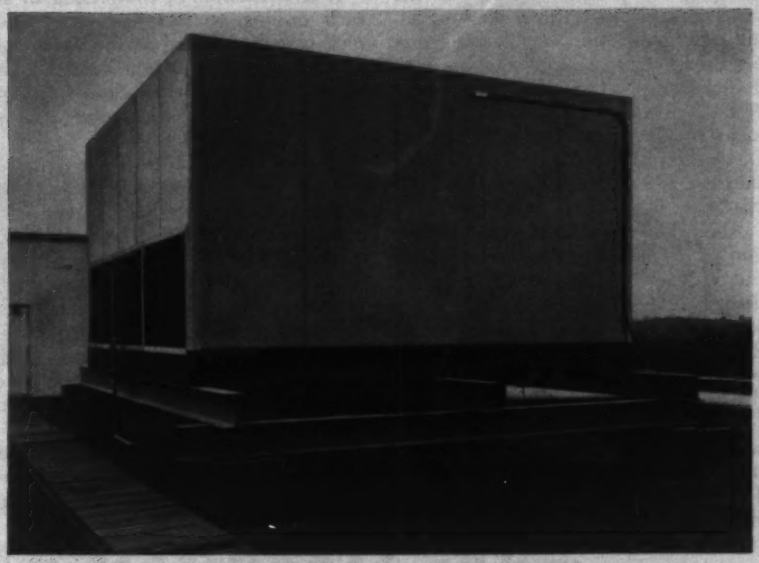
Construction costing $42 million was completed last fall at two important reaches—Amherstburg Channel in the Detroit River below Detroit, and Middle Neebish Channel in the St. Marys River below the Soo.

The Detroit District, Corps of Engineers, which is in charge of the entire 130-mile Great Lakes Connecting Channels project, has $28 million worth of dredging contracts currently under way in 11 reaches.

Contracts for deepening eight other reaches at a cost of $22 million are near ready to go.

Contracts for 11 remaining reaches will be awarded in the next fiscal year (which will begin July 1), although dredging won't begin until the spring season next year.

There will be a large amount of



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More efficient and compact—with heat transfer efficiency maintained at a continuously high level and compactness that provides more freedom of tower site location.

The new Carrier all-steel Cooling Towers combine substantial savings in weight and floor space with a new standard of efficiency in operation. These important advantages are achieved by advanced Carrier design and the use of a new kind of lightweight, plastic fortified cellulose fill, which occupies just 1/5 the space of conventional wooden strips. Tested under the most severe conditions, this fill has stood up structurally and performance-wise.

Carrier Cooling Towers are now in use throughout the United States. They are available in 9 sizes with capacity range from 170 to 500 tons in a single cell. Larger tonnages can be handled with multiple cell towers. Besides savings in weight and space, they also offer lower installation costs and operating advantages. For details, write Machinery and Systems Division, Carrier Corporation, Syracuse 1, New York.

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Carrier

dredging equipment working in the connecting channels this season, including eight hydraulic dredges, seven dipper dredges, two hopper dredges, nine derrick boats, and four drill boats. Next year will probably see even more equipment working, according to Col. Harry O. Fischer, who as North Central Division Engineer in Chicago is in over-all charge of the program.

About 56% of the estimated 66 million cu yd of excavation in the entire project can be removed by hydraulic dredge. Dipper or bucket dredges will remove about 36%. The remaining 8% is ledge rock, some of which will be cofferdammed and excavated "in the dry."

Some of the toughest underwater excavation was encountered in the 8.5-mile-long Amherstburg Channel in the Detroit River, below Detroit. Most of the 3 million cu yd of material removed had to be drilled and blasted, and removed by dipper dredge and barge-mounted draglines.

One drill boat used in this reach mounted four movable drill frames with eight submarine drills. Another was equipped with 20 submarine drills.

In general, the drilling was performed by first lowering a hollow steel sand pipe at each drill station to the rock below. A 3-in. drill shaft with 4½-in. bit was then lowered through the pipe ready to begin drilling.

A concentration of compressed air at each drilling point forced water and rock particles upward to the open end of the pipe. This action kept the bit turning and provided a clean hole for packing explosives when the drilling was completed.

Generally, from 20 to 30 lb of 60% to 75% high pressure gelatine blasting powder was used per hole, spaced 8 to 10 ft apart each way. The holes were loaded through 3-in.-dia charging tubes. These tubes were retracted as the loading progressed, and removed along with the sand pipes before blasting. Millisecond delay blasting caps were used. Drill depth reached 11½ ft in some areas. Production ranged from 1¼ to 1¾ lb of explosive per cu yd of rock.

In some reaches, compensating works must be constructed to offset the lowering effects which the channel dredging will have on lake levels.

Preliminary studies by the Corps of Engineers indicate that compensation will be required in the St. Clair River to offset a lowering of about 3 in. on Lake Huron and Lake Michigan, due to work now in progress as well as dredging completed about 25 years ago.

This will require the construction of three or four submerged sills or dikes in the upper river near Port Huron. Depth of water over these sills will be about 31 ft.

Compensation required for the Detroit River dredging has been completed by the construction of two dikes. One extends between the Livingstone and Amherstburg channels at their upper limits. The other 6,000 ft long, is at the lower end of Bois Blanc Island.

Compensation will not be required in the St. Marys River since the water level in Lake Superior is controlled at St. Marys Falls.

The channel deepening will have no effect on the levels of Lake Erie and Lake Ontario, since they are downstream from the channels being deepened.

While continuing this channel-deepening the Corps of Engineers is also engaged in a Great Lakes Harbor Study to determine which individual harbor should be improved. The study includes 42 investigations.

To date, 18 reports have been completed, calling for a further federal investment of $75 million. An additional 12 harbor-improvement studies will be completed this year. And the remaining 12 harbor studies are expected to be completed by fall of next year.

Total estimated cost of all harbor improvement work in the 42 studies will not be available until the reports are finished. Col. W. W. Wilson is Detroit District Engineer at present, and Col. Peter C. Hyzer was District Engineer during the early stages of the channel and harbor program.

OUR PLATFORM
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"I LIKE IKE"
"MY HAT IS IN THE RING"
"WE'LL STAND PAT"
"WIN WITH WILKIE"
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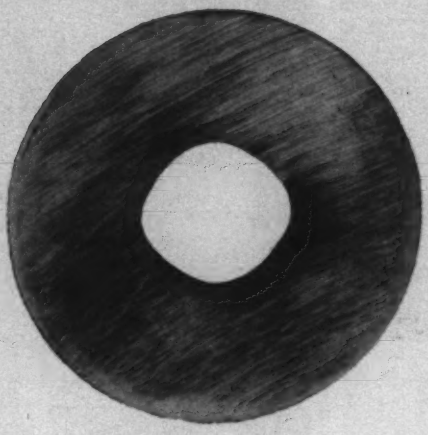
"SIXTEEN TO ONE"
"STAND WITH WASHINGTON"
"Keep cool with Coolidge"
"Government of the people By the people For the people"

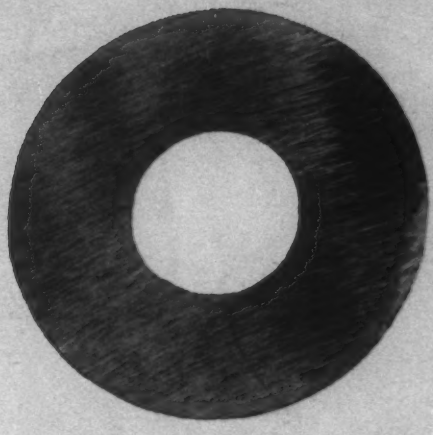
Is Your Horse on This Political Fence?

The old buildings were down, plans for the new apartment house were approved and the usual anonymous plywood barricade was going up around the New York City lot when Dworman Associates, owner-builders, decided to cover the fence with political cheesecake. As far as preference is concerned, Dworman is also on the fence—all candidates, including a "dark horse," are listed in alphabetical order.

Behind the politicians, construction will start within a month on the 12-story, $3.5-million project. Planning for the apartments is by Paul Resnick & Harry F. Green; A. A. Abdalian is structural engineer. Plans for the other job—President picking—are in the works.



Cross section of average extension steel, showing distorted center hole.



Cross section of Sandvik Coromant Steel, showing perfectly uniform center hole.

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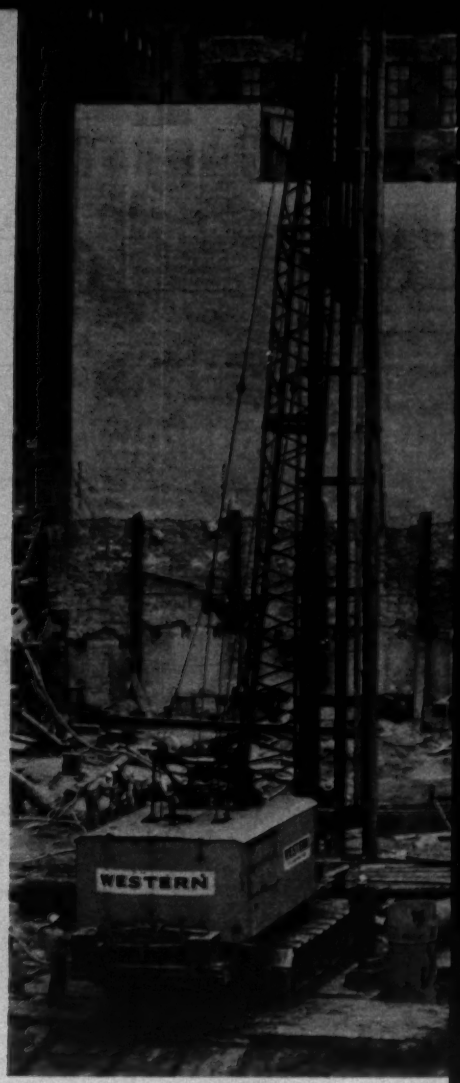
This 36-in.-dia caisson is one of 77 units installed . . .



in a congested lower Manhattan

Large Drilled-in Caissons Become

By J. H. Thornley

Drilled-in caissons of unusually large diameter have been used in New York City to save trouble, time and money in construction of a lower Manhattan skyscraper.

Because of the caissons, cantilever construction was unnecessary in the foundation; cap and beam installation was reduced; and a great amount of excavation, sheeting and shoring was eliminated.

The skyscraper is the 31-story Western Electric Building, which is being erected on Broadway between Ann and Fulton streets at a cost of about $20 million. The structure is supported by 77 caissons, up to 120 ft in depth. Each caisson is: a heavy cylindrical steel shell which is driven until it is seated in bed rock; an uncased rock socket churned from beneath the shell; a core (which on the Western Electric Building was a beam weighing up to 43½ tons, and a column of concrete formed by the filling of the shell.

The installation of the foundation of the Western Electric Building was made difficult by site conditions—congested even by New York City standards.

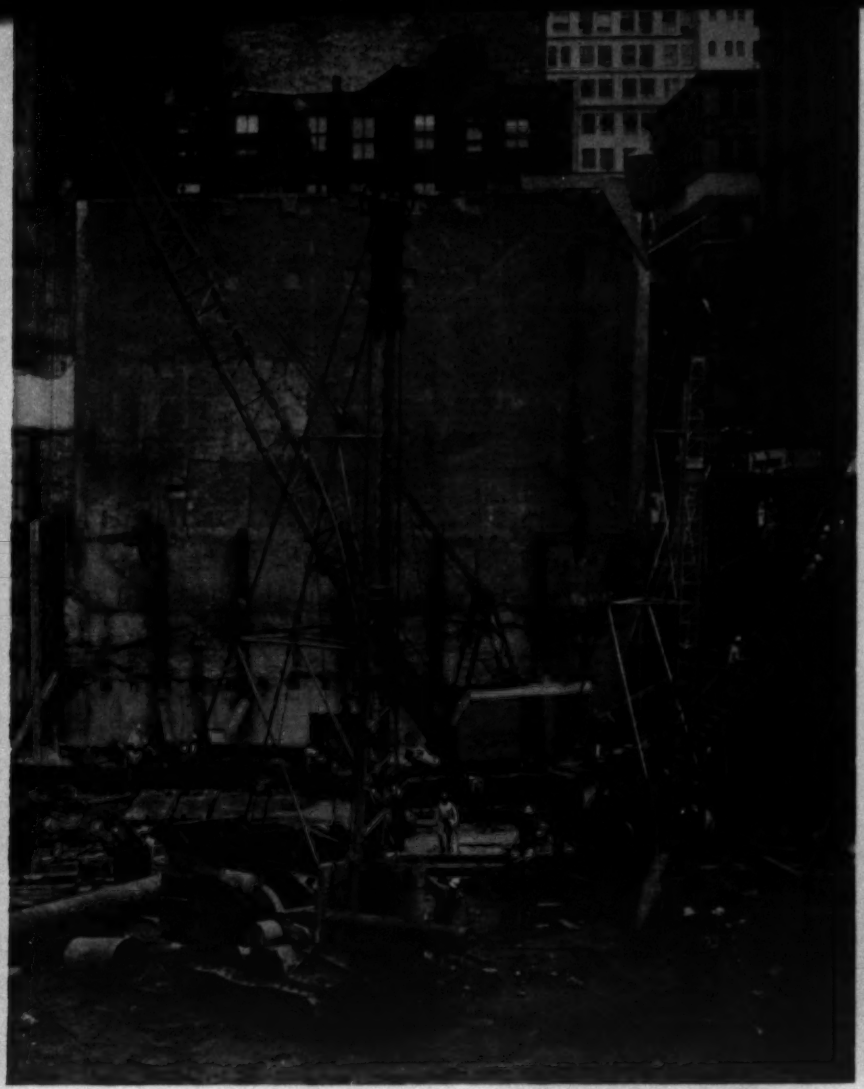
On the south side of the site, a subway wall is within 4 in. at its closest point to the property line. The center line of the caissons under the wall is only 1 ft 4 in. from the property line. The caissons extend approximately 70 ft below the bottom of the subway and any loss of soil below it would jeopardize the tunnel.

On the Broadway side (the west side) a wall of another subway is approximately 4 ft outside the property line.

On the Ann Street side the office building at No. 15 Park Row is approximately 40 ft from the property line. This would be a safe clearance except for the fact that this building is on wood piles of unknown length.

A 100-year-old building is situated so close to the east side property line that —because of bulging of the wall—it actually encroaches at some points on Western Electric property. Original records of this building's foundation were not available; its foundation consisted of a rubble masonry wall extending only 8

J. H. Thornley has been in heavy construction ever since his graduation from the University of Toronto. In 1924 he founded Western Foundation Corp., and is still its president. He is author of Foundation Design and Practice, an Economic View, published last year by Columbia University Press.



site as a foundation for the $20-million . . .

Western Electric Building.

Sturdy Legs for a Skyscraper

ft to 10 ft below curb level. This rubble wall was in very poor condition. It was underpinned before the drilled-in caisson work was started.

The principal danger points outside the limits of Western Electric property had to be protected. At the same time, the points of concentration of loading had to be developed to carry the proposed new structure.

The engineers considered drilled-in caisson construction the fastest, safest, most economical answer to all requirements.

Compressed air caissons could very well have done the job, but for many years such caissons have been prohibitively expensive in New York City because of legal restrictions on working pressures and because of union wages, working hours and manpower requirements.

The drilled-in caisson was developed and patented by Western Foundation many years ago, but today, only the battered drilled-in caisson and certain construction methods are protected by patents.

Since the tip of the drilled-in caisson rests several feet below the surface of the rock layer, it can carry a load many times greater than a unit with the same cross-sectional area resting on rock.

Herein lies the great difference between a drilled-in caisson and a standard open end pile driven to rock—the caisson develops load capacity through bond in the uncased socket.

Loads permitted by the building department of the City of New York under the rulings of the Board of Standards and Appeals were as follows:

- Maximum of 895 tons on the 24-in.-dia caissons.
- Maximum of 1,565 tons on the 30-in.-dia caissons.
- Maximum of 2,392 tons on the 36-in.-dia caissons.

Under the city code the maximum load on any open ended steel pipe pile is set at 200 tons. One 36-in. drilled-in caisson takes the load of 12 open end steel pipe piles of the largest size, each working to the maximum allowable capacity.

For pile clusters the cost of caps, including grillages, would run to a very substantial figure. In some cases the wide spacing of the open end pipe piles would require a cap bigger than the space available.

Before the Western Electric job, 30 in. had been the maximum drilled-in caisson diameter used in New York. Western Foundation, which installed the caissons under subcontract, has

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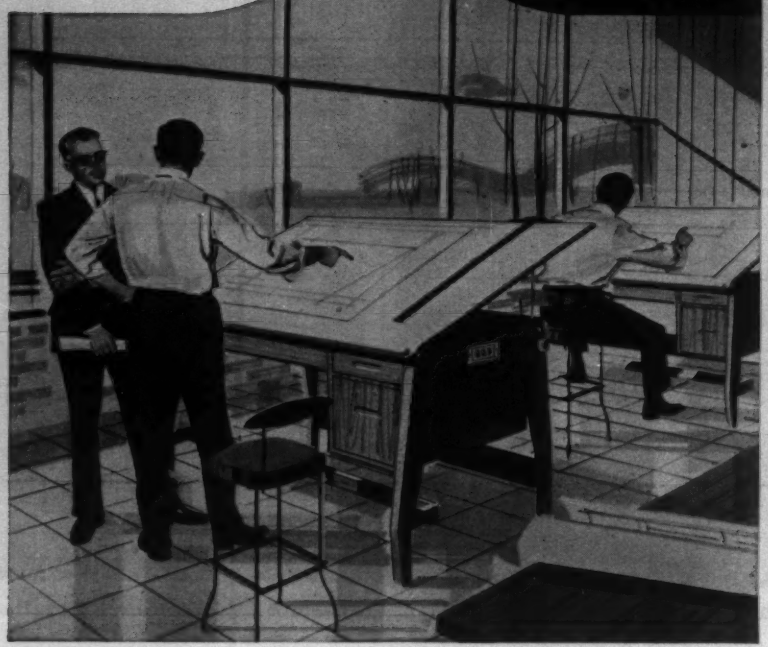

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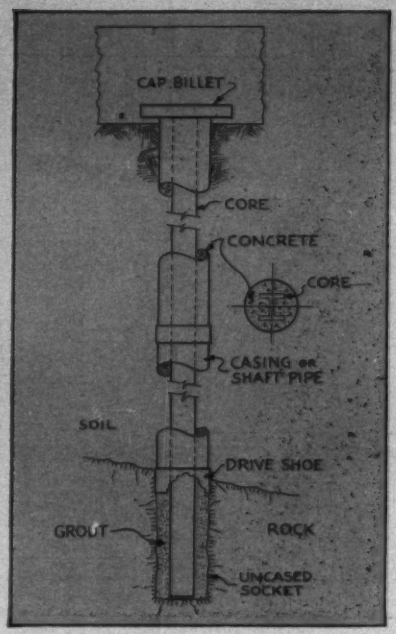

CAISSON DETAIL shows great capacity stems from uncased rock socket.

installed 36-in.-dia drilled-in units, on four other jobs outside the city, but the general practice has been to use multiple 24-in. or 30-in. caissons where the concentrated loads exceeded the permitted limit on a single 30 in. caisson.

The use of group caissons is satisfactory from the standpoint of good engineering, but the provision of a cap to deliver a concentrated load to a group of caissons on 2½-dia clear spacing, through a standard cap design, adds very considerably to the foundation costs.

Therefore, where column loads are not within the maximum for single 30-in. caissons, but can be met by a 36-in. caisson, there is great economy in the use of the larger size.

Installation of the 36-in. caissons to replace 24-in. or 30-in. groups is not as simple as it may sound. It is not merely a matter of increasing the diameter of the drilling bits. A complete redesign of the drilling tools is imperative particularly, if going is rough—and on the Western Electric site it was rough.

It was necessary, in twelve instances, to drill through beds of hardhead boulders up to 18 ft thick. One single drilled socket took 18 eight-hour shifts of drilling to complete. To swing the extra weight tools required it was necessary to use very powerful drilling rigs.

Rigs fully capable of handling equipment for the 24 and 30 in. drilled-in caissons were inadequate for the 36-in. units.

(*Continued on p. 38*)

The 110'6" debutanizer shown above and the 150-ton unit (below), a 3-stage axial flow compressor, are typical Newport News products. Whether you need a hydraulic turbine, vacuum tanks or penstocks . . . bridge caissons, digesters or dryer rolls . . . you can command the services of Newport News for units of about any size or shape.

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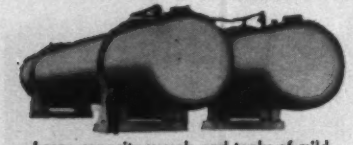

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. . . Western Electric Building

Larger equipment was needed—and even this had to be redesigned and rebuilt for the job.

Even the bits had to be altered radically. It was not enough to change the diameter and weight of a four-winged bit from that required for a 30-in. hole to that which would be needed for a 36-in. hole, nor to supply the added power needed to swing the heavier bits.

Another factor entered in—the internal structural strength of the bits themselves. When the tip of only one of the fins strikes resistance while the other fins are still striking soft material, the striking fin suffers from a cantilever reaction, which tends to tear it off the main body of the bit. Therefore the metallurgical properties of the bits had to be improved.

Another change in design of some of the bits was the use of one or more added fins. This design helps to counteract the occasional tendency in the large diameters toward the drilling of a "square hole."

In spite of difficulties with equipment design, subsurface obstructions and site congestion, the caissons were installed on schedule and with few extras other than those resulting from unanticipated length. Here's how the job was done:

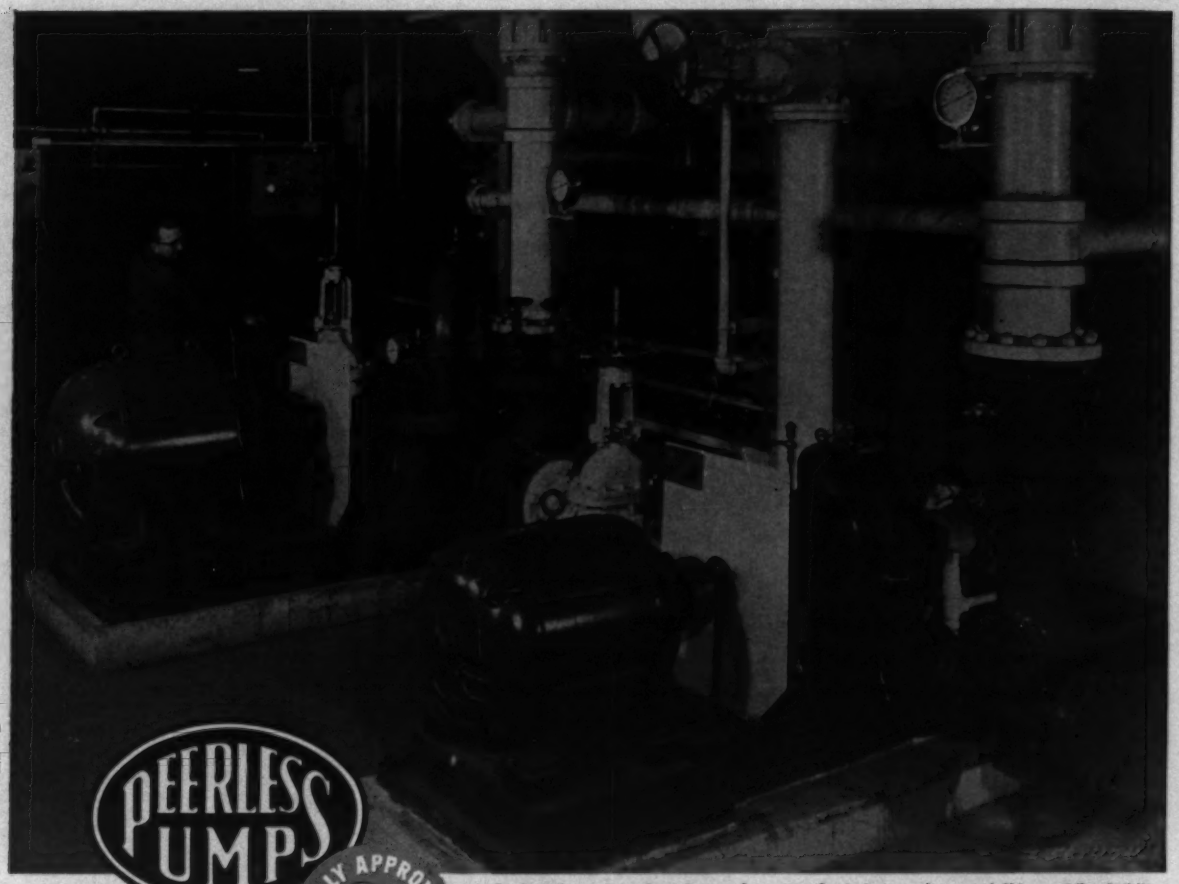
A guide curb was placed on the ground and firmly anchored. The opening in the curb was slightly larger than the casing it was to steady. The over-sizing permitted passage of the drive shoe and the splices. Removable wedges took up any slack during driving.

The casing was placed within the curb and alternately driven and cleaned until it was seated on bedrock. With a churn drill, a socket was then started into the rock. Initially, this socket was cone shaped with its top diameter slightly larger than that of the drive shoe. The caisson was then driven into the socket until it formed a soil-tight joint. The socket was then churn-drilled to the proper depth. A core of predetermined length was set within the shell.

Grout was then placed in the caisson so that it filled the rock socket and at least one diameter of the shell.

After the grout hardened, the caisson was dewatered and concreted, and the billet was set.

The Western Electric Building is being erected by George A. Fuller Co., of New York City. Crimmins-Slattery, a joint venture of two other New York firms, was foundation subcontractor, and Western Foundation installed the caissons. Architect for the project is Shreve, Lamb & Harmon Associates. Purdy & Henderson, Assoc., Inc., is consulting structural engineering firm.



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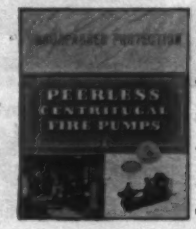

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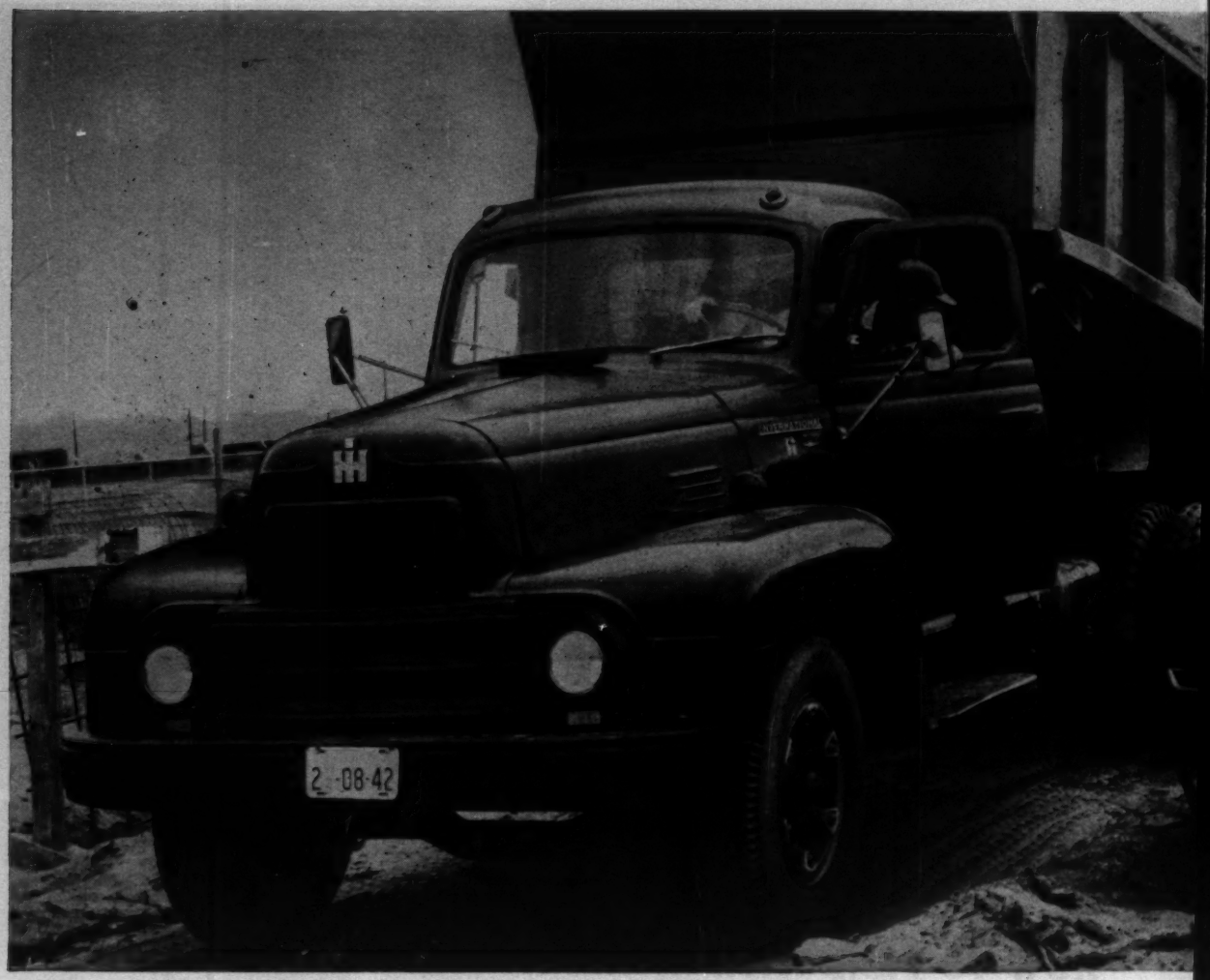

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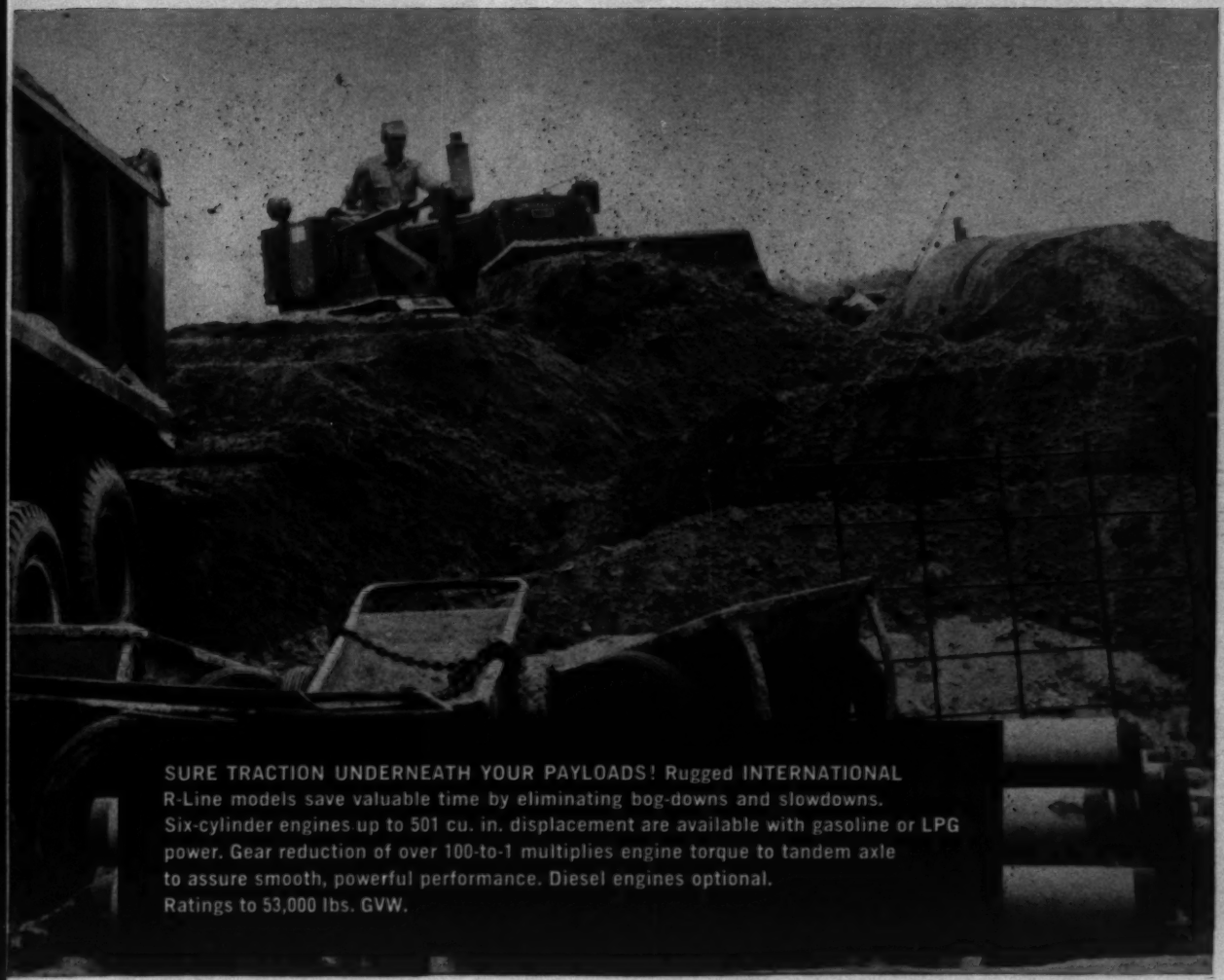

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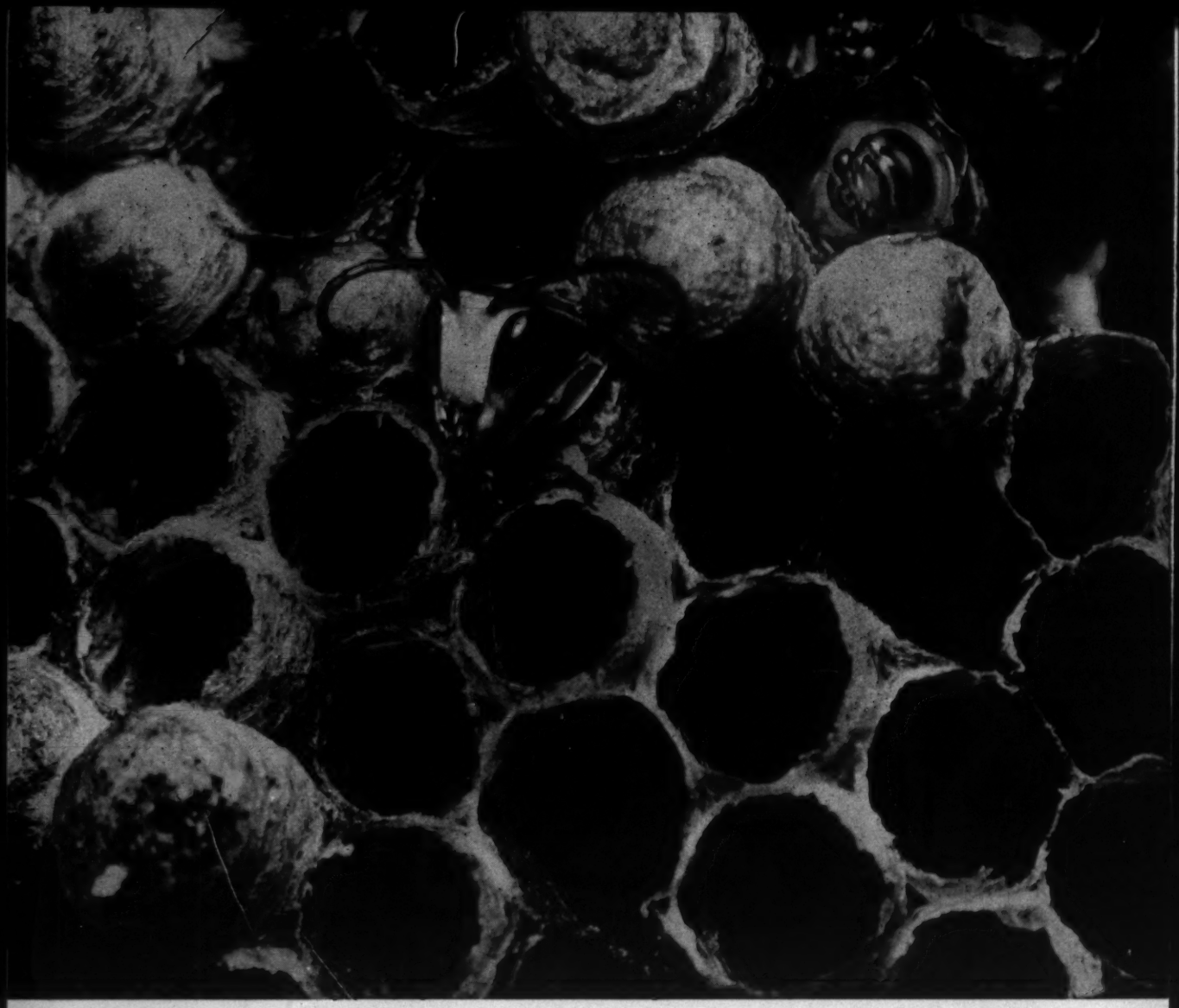

Meet an expert in light construction A hornet nest is one of the few geometric structures built by nonhumans. Hornets chew wood fibers to a pulp, then build their nest entirely of this home-made paper. Notice the design of these cells; they're hexagonal for space economy. This hornet nest is light, yet strong enough to protect against the elements. ☐ To achieve these same features in light man-made structures, we suggest USS AmBridge Steel Joists—both standard and longspan. They provide strong, lightweight and economical construction suitable for most any type of roof, ceiling or floor. AmBridge Joists have an underslung, open-web design for maximum headroom, and to accommodate pipe, ducts and conduit in all directions. AmBridge Steel Joists are easy to install. And once in place, they make a safe working platform. Want more information? Write to our Pittsburgh Office for your free copy of a 40-page catalog.

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USS

Novel Deck Saves Steel and Weight

An orthotropic-plate deck will be incorporated in the 1,200-ft arch span of the Port Mann highway bridge now under construction in Canada. Objective: savings in steel and weight.

This unusual deck has rarely, if ever, been used in the Western Hemisphere, for long-span bridges, although it has been used in Europe (ENR Nov. 7, 1957, p. 36). It is a stiffened steel plate that serves both as deck and as flanges of transverse and longitudinal girders. It carries only a 2-in. thick asphalt pavement instead of a conventional reinforced concrete slab and wearing surface.

And, to cut costs, 6,500 tons of the bridge's 9,500 tons of structural steel will be low-alloy steel.

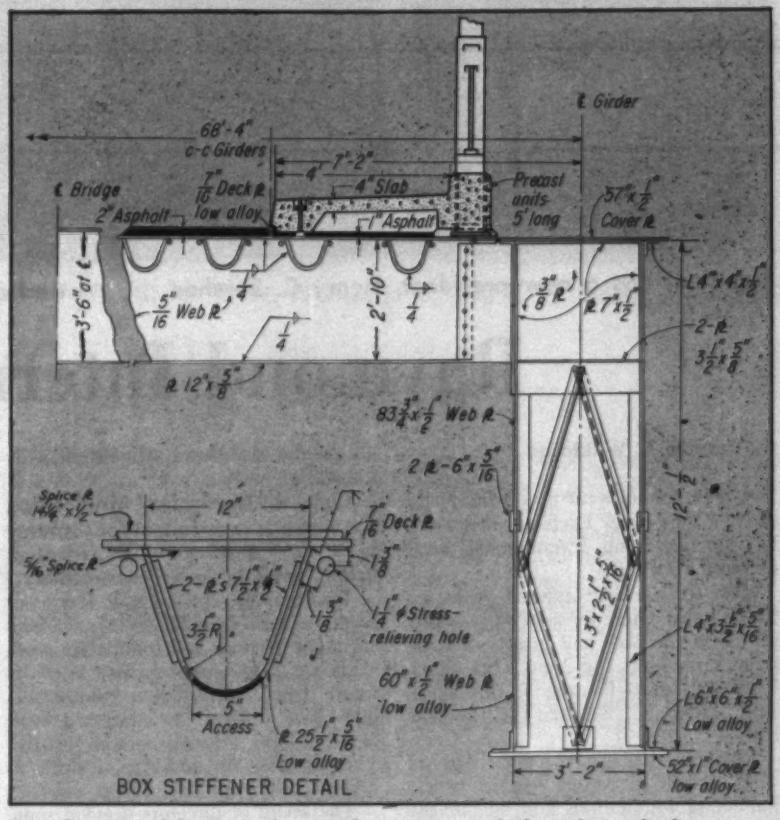
The $25-million Port Mann Bridge will span the Fraser River about four miles upstream from New Westminster, B. C. It will be a major link in the Trans-Canada Highway System through the Fraser Valley, connecting with the Second Narrows Bridge at Vancouver, 15 miles to the west.

The bridge will be 6,900 ft long and carry four lanes of traffic. The main span, which contains the orthotropic-plate deck, will be a 1,200-ft tied arch flanked by 360-ft arch spans. It will provide a maximum vertical clearance of 145 ft above high water. The rise of the main arch will be about double this distance, since the roadway will be at about midheight of the arch.

Distance center to center of the two arch ribs and deck girders will be about 68 ft. To provide an unobstructed longitudinal deck line for esthetics, railings at the outer edges of 4-ft wide precast, lightweight-concrete sidewalks flanking the roadways will be located about 2 ft inside the centerline of girders.

Both the arch ribs and the deck girders will be box construction. The ribs will be about 4½ ft deep. Spandrel columns and hangers also will be builtup members, including some box sections.

The deck girder will be 12 ft deep. It will be composed of two ½-in. thick web plates spliced a short distance below mid-depth, four angles, a bottom plate and the orthotropic plate (see cross section). The last will be ½ in. thick atop the girder, ⅜ in. elsewhere.



Top flange of box girder (right) is part of the plate deck.

Since the cross sectional area of the orthotropic plate is much larger than that of the bottom flange of the girder, the neutral axis will be about 3 ft above the normal mid-depth location. The girder will therefore be considerably stiffer than a conventional girder.

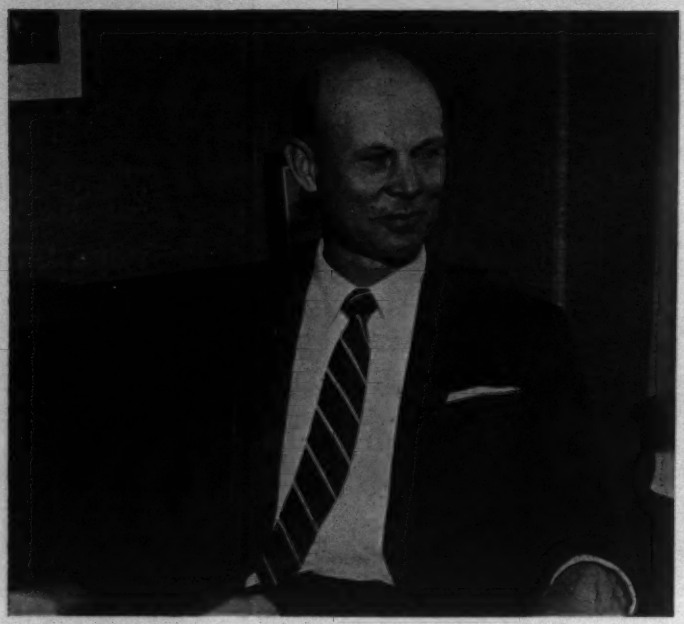
Cross beams will span between the girders at 50-ft intervals. They will be welded plate girders, with the orthotropic-plate as top flange.

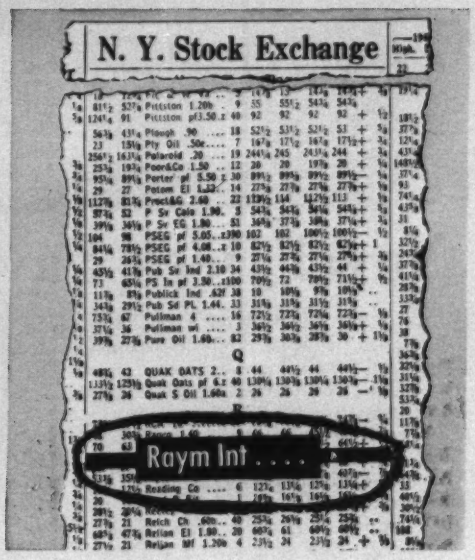
Shop-fabricated units of the deck will be welded. Other portions of the structure will be shop riveted. High-strength bolts will be used for field connections.

Approach spans will be of welded plate-girder construction, designed for composite action with the 8-in. thick concrete deck. They will have three lines of girders, each continuous over three spans, 175-225-175 ft.

C.B.A. Engineering Ltd., Vancouver, B. C., consulting engineers, designed the bridge and is supervising construction.

Dominion Bridge Co., Ltd., Montreal, holds a $6.9-million contract for fabrication and erection of the structural steel. Foundations and substructure are being constructed by Perini Pacific Ltd., under a $7.3 million contract, and John Laing & Son, Ltd., under a $3.8-million contract. Both are Vancouver firms.





Raymond has a new president, Henry C. Boschen, . . . and a new stock exchange listing.

Raymond International, Inc.

By Joseph F. Wilkinson

A new symbol went up on the board of New York Stock Exchange this week, RII for Raymond International, Inc., of New York City.

"We feel we have matured, grown up to the point where we want to be represented in the class and quality of company carried by the New York Stock Exchange," says Raymond's new president, Henry C. Boschen, of the new listing.

Raymond has grown a lot in its 63 years, grown to be the world's largest builder of foundations and one of the top three or four U. S. companies in overseas construction. Its volume last year was $100 million, and this work was spread over more than 20 countries and six continents. Raymond International now owns 100% of 36 consolidated subsidiary corporations that are located in various states and countries and has part interest in 13 affiliated companies.

The company even grew out of its original name, Raymond Concrete Pile Co. In 1958 stockholders decided that name might give potential clients abroad the idea that Raymond did only foundation work.

***Associate Editor Joseph Wilkinson** joined the security analysts last week to hear Raymond International bare its business soul in its move to the big board, went on to explore with Henry Boschen the new Raymond emphasis on domestic general construction.*

Under the leadership of Mr. Boschen, Raymond is now intent on growing in a field that got little attention before, domestic heavy construction.

Traditionally, the bulk of Raymond work has been split between heavy construction overseas and foundation work at home. For instance, last year domestic heavy construction volume was only $6.7 million, as compared with $42.3 million in heavy work abroad and $32.6 million in foundation work at home.

The board of directors decided some time ago to expand its heavy construction work in the U. S. One of Henry Boschen's first moves as president was to raise it from the level of an activity to full division status.

"Our decision to expand this work is a logical development of our overseas work," Mr. Boschen says. "We are now actively bidding on all major heavy construction projects which fit into our scheme of operations."

Dams, large bridges, tunnels, offshore installations, missile bases and canals fit into this scheme. "We won't be looking for the run-of-the-mill work that anyone can do; we won't go after roads. We want jobs with a twist to them, jobs that demand ingenuity, flair and a high degree of engineering skill," the president says.

Mr. Boschen says definitely that Raymond won't compete for jobs with companies from whom they've been getting subcontracts for foundation work. "The occasional building job we might get wouldn't pay for the work we'd lose as a result of it," he says.

Tall, lean and exuding confidence, almost the Hollywood stereotype of what a successful executive should look like, 54-year-old Henry Boschen became president of Raymond the hard way. He's the first chief executive of the company to work his way up from the bottom of the ladder.

"I joined Raymond right after getting out of Cornell, July 5, 1928, because I was attracted to the kind of people in it—I had met Maxwell Upson (then vice president and member of the board of directors) and others—and I was impressed with the jobs they were doing. I was a mechanical engineer and naval architect, but I refused all the mechanical offers I got and came to Raymond as a cadet, a clerk and timekeeper."

(Mr. Upson, a director of Raymond since 1907 and chairman of the board from 1946 to 1960, is a graduate of Cornell and a trustee [ENR Nov. 21, 1952, p. 81]. One-third of the company's 24 college-graduate recruits this year are from Ithaca, too. Raymond is known as a Cornell company.)

When Maxwell Upson, 84, retired as chairman of the board at Raymond early this year a push-up occurred all

Boschen's builders: G. W. Bailey, domestic; D. W. Moss, foundations; and E. T. Morris, overseas.

Goes Up on the Big Board

around. President George F. Ferris, 58, who left a vice-presidency and directorship at Turner Construction Co. to join Raymond in 1946 and become its president in 1953, was elected chairman. From now on his main responsibility will be the high risk, spectacular jobs that have been his specialty.

Candidates for the presidency were Mr. Boschen and Executive Vice President Myron W. Krueger, 50, former assistant controller of Carnegie-Illinois Steel Corp., with 12 years in the company. When Mr. Boschen won the presidency, Mr. Krueger became vice chairman of the 13-member board.

Henry Boschen had been a vice president and a director since 1946. His most recent assignment was vice president in charge of the General Contracting Division.

Although in most photographs he looks like the sort of executive who'd relish mass firings on Christmas Eve, Henry Boschen is an affable, extroverted man, well liked through company ranks. People in Raymond's offices at 140 Cedar St., in Manhattan's financial district, call him Hank.

Under Mr. Boschen's reorganization, three major divisions will carry out Raymond's work: Raymond Concrete Pile Division; the Overseas General Contracting Division; and the North American General Contracting Division.

The concrete pile division's foundation work was the nucleus of Raymond and is the cornerstone of the company's operation. It is carried out through 21 district offices in the U. S., three in Canada and a licensee in Hawaii. Although the company is ready to take on all kinds of foundation work, its specialty still lies in the field of the shell-encased cast-in-place concrete pile.

In concept, the present shell-encased piles resemble the one invented by Alfred A. Raymond in Omaha in 1897. His idea was to drive a thin shell on a mandrel, remove the mandrel and fill the shell with concrete.

For all its present lustiness, the early Raymond Concrete Pile Co. was a sickly child. It was four years before the company got its first job, driving 350 17-ft piles for what is now Chicago's Bryson Hotel. Subsequent acceptance wasn't exactly volcanic, but by 1907 Raymond was starting its 50th job.

Raymond has now driven enough linear feet of piles to encircle the earth. The largest job they've done was 42,000 piles for the Pentagon. The company laid the foundation for Detroit's Convention Hall and did the pile work that supports the 24-mile Lake Pontchartrain Causeway. In New York City alone more than 325,000 persons live in apartments supported by Raymond foundations.

Donald W. Moss, 59, who joined Raymond 24 years ago as a field superintendent, is vice president in charge of the pile division.

Foundation construction is responsible for 35% to 40% of the company volume, making it the second largest segment of the business. A large portion of the division's work comes from industrial construction. To iron out the peaks and valleys caused by fluctuation from this source, Raymond is increasing its foundation work on highways and other public works jobs.

An important part of the pile division is soil investigation work. It doesn't bring in much money, from 2% to 3% of volume, but it enables the division to keep well informed on plans for new construction.

One of the company's newest and most promising activities in the foundation field is prestressed concrete cylinder piling. One of the results of the $500,000 to $1 million that Raymond invests annually in research and development, the pile is radically different from the standard, shell-encased pile. It is a string of precast concrete cylinders placed end to end and tensioned with high-strength cables.

Developed less than 10 years ago, cylinder piles now support offshore platforms, bridges, piers, breakwaters and other structures. They represent from 5% to 10% of the company's volume.

(Turn the page)

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Vega Industries, Inc.

The North American General Contracting Division is in the hands of Vice President G. William Bailey, a 44-year-old civil engineer who's been with the company since he left college. Mr. Bailey, generally thought of as a man with a big future in Raymond, is expected to expand domestic general construction beyond the 7% of volume it brought in 1959.

Overseas construction work is the big money-maker at Raymond, usually accounting for 40% to 50% of volume. Although work abroad has brought in as little as 13% (in 1951), it's been above 50% for the past three years and was 64% in 1958.

Raymond got into overseas work, somewhat cautiously, in the '20s and '30s. Most of the projects were in South America and the company usually had only one or two going simultaneously. During World War II Raymond headed a group of contractors that handled $1¼ billion worth of construction procurement, shipment and supply work for Pacific naval bases. Overseas activities increased greatly after the war.

Last year Raymond got $38 million worth of heavy construction work overseas and completed $42 million. At the beginning of 1960 the company's backlog was $48 million and by the end of April it rose to $85 million.

Edwin T. Morris is vice president in charge of Overseas General Contracting. Mr. Morris, 48, studied civil engineering at New York's Manhattan College and joined Raymond in 1937 as a field engineer.

One of Raymond's basic policies for successful construction operations is: "Diversify construction services and geographical areas covered." A list of some of the important overseas work in progress shows what they mean:

- Waterfront development and harbor construction in Liberia, Ecuador, Puerto Rico, Jamaica, Nigeria and Iraq.
- Offshore installations in the Persian Gulf and Venezuela's Lake Maracaibo.
- Foundations in England, Puerto Rico and Venezuela.
- Military bases in Spain.
- A dam in Australia.
- An airport in Jamaica.
- Roads in Colombia, Thailand, Liberia, Kenya, the Sudan and Iran.

President Boschen, who developed much of the overseas construction business, has a collection of rules that enables Raymond to prosper in a field where merely to avoid bankruptcy is often an accomplishment:

- If a revolution occurs, stay out of the way until it blows over.
- It doesn't pay to buy officials' favors.
- Trying to compete with local contractors is asking for trouble. We work almost entirely through subsidiary companies, and the best kind of subsidiary is one composed entirely of local citizens, he says.
- Strict preventive maintenance of equipment is necessary.
- A good overseas construction manager has all the skills of a domestic manager and is diplomatic, stable, self-reliant, tolerant, patient and capable of handling a broad range of problems.
- The best overseas construction team is helpless unless an adequate supply line is maintained.
- Operate with a small value in physical property overseas. Raymond's is about 10%, spread over 20 countries.
- Buy materials and services where you can get the most for your money, which may be anywhere in the world. This is the only way we can compete with European companies semi-subsidized by their governments, Mr. Boschen says.
- Work primarily for U. S. dollars, freely convertible currencies or in currencies guaranteed convertible without loss.
- Joint ventures with foreign firms are a good means of spreading risks.
- Show a genuine interest in helping a country in its economic development.

Evidence of the value of these and other Raymond operating policies is the company's 1959 net profit of $5,123,000, equal to $1.72 a share on 2,972,358 shares outstanding, one of its three best years.

New work awarded in 1959 was $101 million. Contract amounts earned totaled $100 million and the backlog was $84 million. By the end of April, $76 million in new work had been awarded, more than double the amount reported for the same period in 1959. Contract amounts earned in the first four months totaled $32 million and the backlog rose 50% from the beginning of the year to $127 million.

Raymond's net earnings rose from $2.5 million in 1950 to a record high of $6.4 million in 1957 and then fell to $3.9 million in 1958. Net worth has increased steadily from $11.2 million in 1950 to $35.1 million in 1959. Officers say the company's working capital, $23 million, is adequate to undertake considerably greater volumes of work without need for additional equity capital, at least for the next several years.

The American Stock Exchange carried Raymond common stock until this week. Last year it ranged in price from 18⅛ to 25⅞ a share and the dividend was 75 cents.

WGAN-TV transmitting tower, Portland, Maine. Held aloft by Roebling bridge strand.

18 "Good Guys" From Roebling Hold World's Tallest Man-Made Structure Proudly Erect

This is just about as high as you can go without a launching pad. This KIMCO tower was designed, fabricated and built by Kline Iron & Steel Company, Columbia, South Carolina, for WGAN-TV, Portland, Maine. It reaches 1619 feet into space. Man has yet to go higher and still be anchored to Mother Earth.

Holding this "air-borne" giant up there are eighteen prestretched galvanized guys, made of Roebling bridge strand at their plant in Trenton, New Jersey. These guys measure some four and a half miles in length. Other breath-taking statistics are: 520,000 lbs. of steel in the tower and the longest vertical lift elevator ever constructed. As for nuts and bolts — there are 13,400 of them.

There's only one place to go when you have a guying problem and that's to Roebling's. Our experience and facilities for solving all types of suspension problems and in meeting the soaring needs of broadcasters everywhere are unlimited. Write Bridge Engineering, John A. Roebling's Sons Division, Trenton 2, N. J.

Strand Dia. (Inches)	Total Length (ft.)	Average Length Each Guy
3 @ 1-1/4	2025	675
3 @ 1-5/16	2370	790
9 @ 1-7/16	13065	3 @ — 970
		3 @ — 1305
		3 @ — 1880
3 @ 1-9/16	5040	1680

Designed, fabricated and erected by Kline Iron & Steel Co., Columbia, South Carolina.

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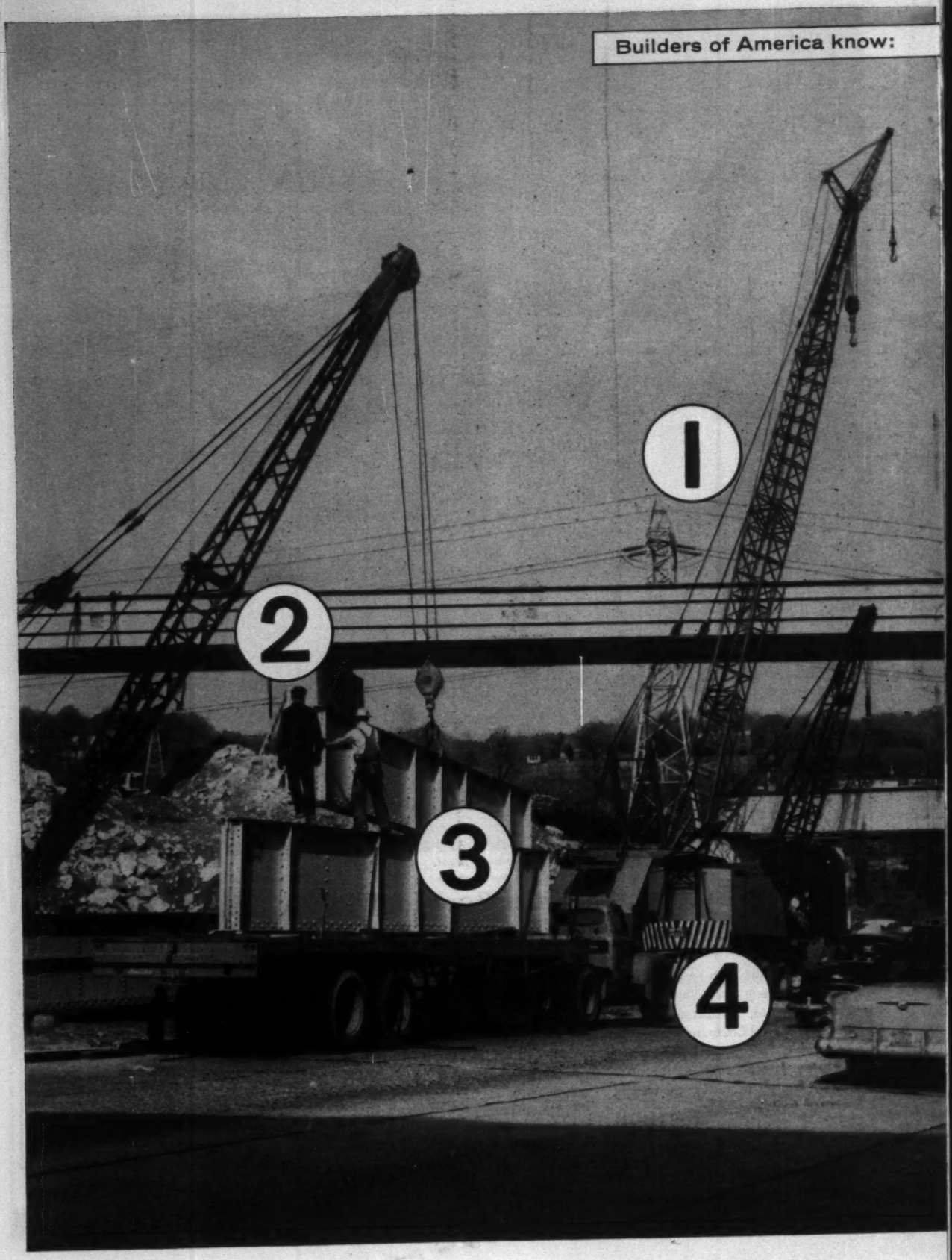
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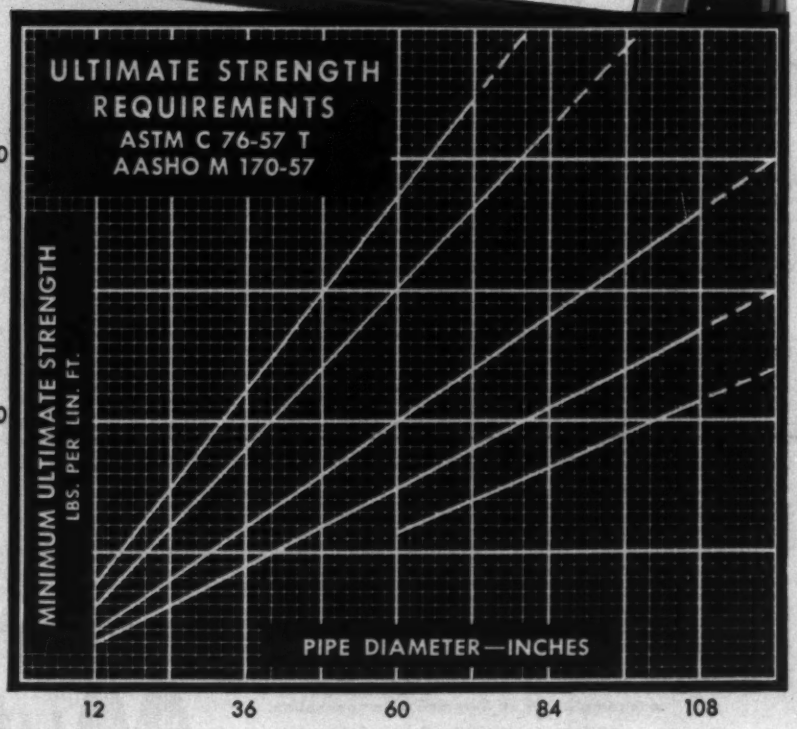

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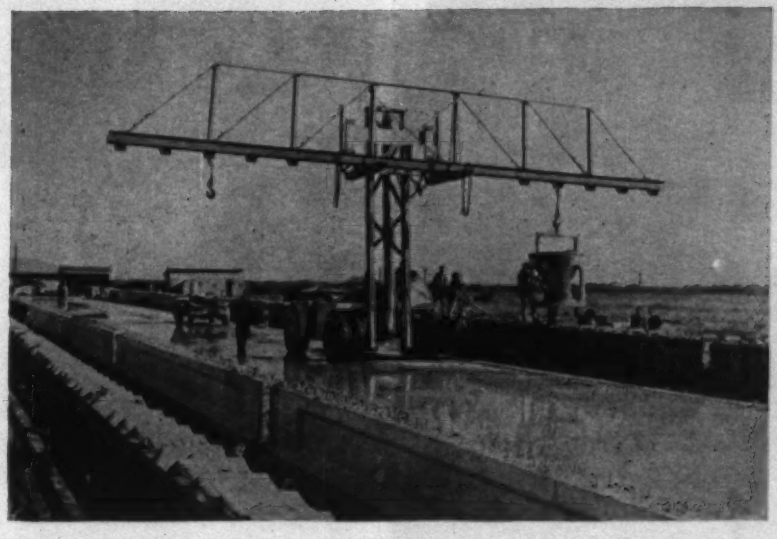
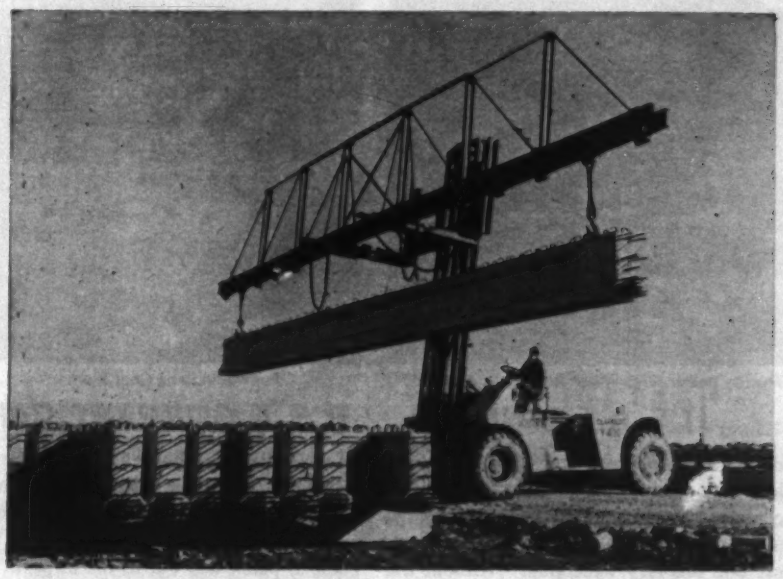


Fork-Lift Truck Casts Beam . . .



. . . Carries It to Stockpile Area

The Clarklift Model CY-400 forklift truck, equipped with a special hook attachment made by Anchor-Wate Co., Houston, can easily lift and position concrete from 5,000-lb bottom-dumping concrete hoppers.

The fork truck can also strip the forms and carry the cured concrete beams to an area where they can be stockpiled. It handles loads up to 19 tons, the manufacturer says.

At Anchor-Wate, the Model CY-400 with the special hook attachment replaced two mobile cranes and effected a 30% reduction in pouring time of prestressed concrete bridge beams, according to the manufacturer. In replacing the two mobile cranes, the prestressing plant also reported savings in fuel of $22.50 a day.

The Clarklift CY-400 has a 40,000-lb capacity. Clarke Equipment Co., Industrial Truck Division, Battle Creek, Mich.

Portable Crushing Plant Features High Output

The model 70 portable crushing plant has a capacity in excess of 175 cu yd per hr of material passing a 1-in. screen based on 25% oversize. It is a rotor-lift, closed circuit plant.

Component units include a 10-in. by 36-in. jaw crusher, 32-in. by 24-in. star gear roller crusher, 2½-deck 4-ft by 12-ft vibrating screen and 30-in. wide belt conveyors. Travel weight is about 55,000 lb. Diamond Iron Works, Halsted St. and 48th Place, Chicago 9, Ill.

Portable Asphalt Heater For Plant Mixture Use

A portable unit that heats and stores asphalt for use in plant mixtures is equipped with a choice of 10,000, 15,000 or 20,000-gal asphalt storage tank and a Cleaver-Brooks Peak-Temp oil heater that can boost the temperature to 450°F. The unit is mounted on a single frame and rolls on pneumatic tires.

The Peak-Temp oil heater is an automatic direct-fired heater with forced circulation. It heats and circulates heat transfer oils at 8 ft per sec through a closed system and rapidly heats the bitumen to usable temperature before returning the oil to the heater.

Safety controls are provided that safely shut down the heater in event of flame failure, high pressure and temperature, low liquid or loss of oil. Cleaver-Brooks Special Products, 225 N. Grand Ave., Waukesha, Wis.

Air Hoists Operate Without Multiple Reeving

Two air-powered utility hoists handle heavy erection maintenance and materials handling jobs without multiple reeving.

The K6U, rated at 7,000 lb capacity, and the K6UA, rated at 5,000 lb capacity, are each equipped with reversible six-cylinder air motors with infinite speed graduation provided by hand throttles. An inertia brake supplements reversible motors for positive control.

At 80 psi air pressure the K6U has an average lift speed of 65 ft per min. The K6UA is rated at 95 ft per min. Drum capacity of both units is 600 ft of ⅜-in. wire rope or 400 ft of ½-in. wire rope. Controls for remote operation of both hoists are available as optional equipment. Request Form 5274 from Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.

For Helicopter Service Companies

IT'S A TRUCK

Sikorsky helicopters—hauling heavy equipment, parts, supplies and men right to the job—are working as trucks for: Okanagan Helicopters Inc., Petroleum Helicopters Inc., Rotor-Aids Inc., and Worldwide Helicopters Inc. Such companies lease Sikorsky helicopters to a wide range of industries to do a variety of trucking jobs. In a fraction of the time that it takes an on-the-road truck, and at less cost, helicopters deliver the goods.

Working as trucks, Sikorsky helicopters are busily engaged in oil exploration, pipeline and transmission line construction, geodetic surveys and cargo transfers.

For the Puerto Rico Water Resources Authority

IT'S A CRANE

In Puerto Rico, work crews for the Water Authority once needed three to four *months* to plant 100 transmission-line poles. Now, one crew plants 100 poles in *one day* with just one Sikorsky helicopter. "Without the helicopter, it used to cost as much as $380 to set a pole. With the helicopter working as a crane, costs have tumbled to $35 to $75 a pole," reports Rafael R. Ramirez, the Authority's assistant executive director.

As cranes, Sikorsky helicopters are solving costly, time-consuming problems everywhere with a new approach—from the air. The result: lower costs, higher profits.

For the Indiana Gear Works

IT'S A COMPANY CAR

At the Indiana Gear Works, a Sikorsky S-51 helicopter (the newer S-62, shown above, is now available) speeds management personnel from company offices to outlying plants, from plant to plant, and out to the airport. "The saving in executive hours is almost incalculable," reports one official. This not only means time saved, money saved, but *more business accomplished.*

As company cars, Sikorsky helicopters are also ferrying high-salaried personnel city to city, city to airport and company office to customer's office. Helicopters are freeing executive hours for more productive work.

Sikorsky helicopters did all these things first. Altogether, they do more of these jobs today than all other vertical lift aircraft. To learn how your company can gain from the work of a Sikorsky helicopter truck, crane or company car, write to Sikorsky Aircraft today.

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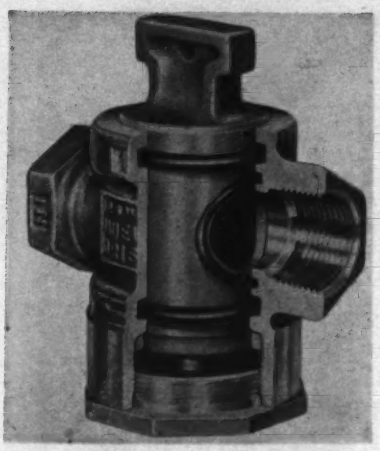

Plug Valve Turns Easily, Is Maintenance Free

A new line of quarter-turn plug valves features easy turning even in larger sizes and after prolonged idleness, according to the manufacturer. Sticking and freezing of the plug are claimed to be eliminated. Long life, free from lubrication and maintenance worries, is also attributed to the line of valves.

Position of the tee head indicates whether the valve is open or closed.

Entire valve assembly consists of six parts—three O-rings, the body, a Teflon-coated plug, and the base cap. Sizes range from ¾ in. through 2 in., each with working water pressure rating of 125 psi. MUELLER CO., 512 WEST CERRO GORDO ST., DECATUR, ILL.

Rugged Metering Pump Is Moderately Priced

A new metering pump of simple and compact design is described by its maker as particularly suited to handling slurries and viscous liquids.

Discharge capacity is adjusted by means of a control knob on top of the unit, which turns a lead screw to increase or decrease piston movement. A stroke indicator, which is an extension of the piston itself, shows pump capacity at all times. Pump capacity can be adjusted while the pump is operating.

The pump, called Metriflow, is available in four standard sizes, with capacities ranging from 0 to a maximum of 10, 18, 36, or 54 gph, and for pressures up to 300 psi. Duplex pumps are available which double these capacities without increasing motor size, since the power strokes of the two pistons are staggered. The manufacturer emphasizes the pump's unitized construction. THE MADDEN CORP., 1345 JARVIS STREET, CHICAGO, ILL.

CONTINENTAL RED SEALS ARE ENGINEERED TO FIT THE JOB

Rarely will you find an item of industrial, construction or road building equipment that won't run best and cheapest on Continental Red Seal power. The reason lies in specialization—in Continental's long-standing policy of engineering each model precisely to the work to be done. Whatever the machine . . . whatever its job . . . you can bank on it for abundant power at the speeds consistent with low fuel and upkeep cost.

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Ask for a recommendation on your next project.

The DEMING Co.
604 BROADWAY • SALEM, OHIO

THE BRUNTON* POCKET TRANSIT

IT'S HANDY...
weighs only 9 oz.; 2¾" x 3" x 1⅛"; easy to carry in pocket, on belt, in car.

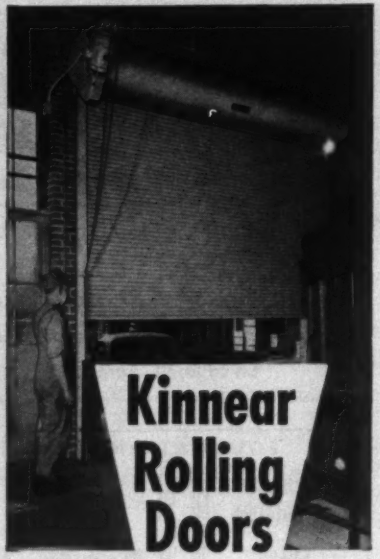
IT'S VERSATILE...
ideal for preliminary and supplementary surveying; used as a compass, transit, level, plumb, alidade, clinometer. Shows direction to 1°; level, slope or grade within 1°.

IT'S MADE TO LAST A LIFETIME
"Over 60,000 Brunton Transits since 1896"

See your local engineering supply house or WRITE FOR CATALOG

**Brunton is a registered trademark of*

WM. AINSWORTH & SONS, INC.
2151 LAWRENCE ST. • DENVER 5, COLORADO



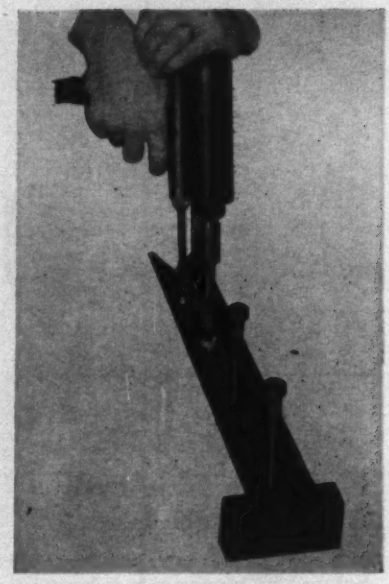
The "Keystone" of Efficiency

Kinnear originated the efficient door curtain of **interlocking steel slats**...introduced the **single-shaft torsion spring** that gives **uniform** regulation of operating ease from a **single adjustment wheel.** Kinnear's **coiling upward action** is your best investment in doorway service and protection! Write for free catalog!

The KINNEAR Manufacturing Co.

KINNEAR ROLLING DOOR
Saving Ways in Doorways

1820-40 Fields Avenue
Columbus 16, Ohio
1742 Yosemite Ave.
San Francisco 24, Calif.



Stud-Welded Anchors Fit Angle Fillets

Type H-4, headed concrete anchors can be stud-welded to flat surfaces or to angle fillets. The anchors are available in five sizes—from ¼-in. to ¾-in. shank dia. Lengths vary from 2⅜ in. to 7⅞ in., depending on the shank diameter.

The new system gives faster, more economical fabrication and stronger anchorage than conventional methods, according to the manufacturer. NELSON STUD WELDING DIVISION, GREGORY INDUSTRIES, INC., LORAIN, OHIO.

Crusher Side Setting May Be Read Externally

A method of externally indicating the close side setting of Allis-Chalmers gyratory crushers equipped with "Hydroset" adjustment of the main shaft and crusher mantle has been introduced by the manufacturer.

The indicating system can be used in conjunction with the hydraulic adjustment of the main shaft even while the crusher is in full operation.

The system operates electro-magnetically. Magnets are fastened to the movable cylinder of the hydraulic adjustment and move up or down with this cylinder. As the magnets move, an electric probe permanently fastened within the crusher's bottom shell assembly receives a signal and immediately registers the movement on a visual instrument mounted at any convenient location. The unit is calibrated to make adjustments for wear. ALLIS-CHALMERS MANUFACTURING CO. INDUSTRIES GROUP, MILWAUKEE, 1, WIS.

New steels are born at Armco

FIVE MILES of Armco Pile Shells

SUPPORT BRIDGES OF THE ATLANTA DOWNTOWN EXPRESSWAY

With the city's skyline in the background, one of the country's most advanced expressway systems is now under construction in Atlanta, Georgia. Designed by the Georgia State Highway Department, bridges for the Atlanta Downtown Expressway are supported by more than 30,000 feet of Armco HEL-COR® Pile Shells—a total of 770 cast-in-place piles.

At right in the photo is a driving rig of the C. L. Guild Construction Co., East Providence, Rhode Island, with a 15,000 ft./lb. hammer and a Cobi mandrel that drove these piles to the required resistance. The abutment piles, straight and battered, were driven through a compacted earth embankment. After driving, the Armco Pile Shells were filled with 3,000-psi concrete.

For more data on Armco Pile Shells and other foundation products, write us. Armco Drainage & Metal Products, Inc., 7070 Curtis Street, Middletown, Ohio.

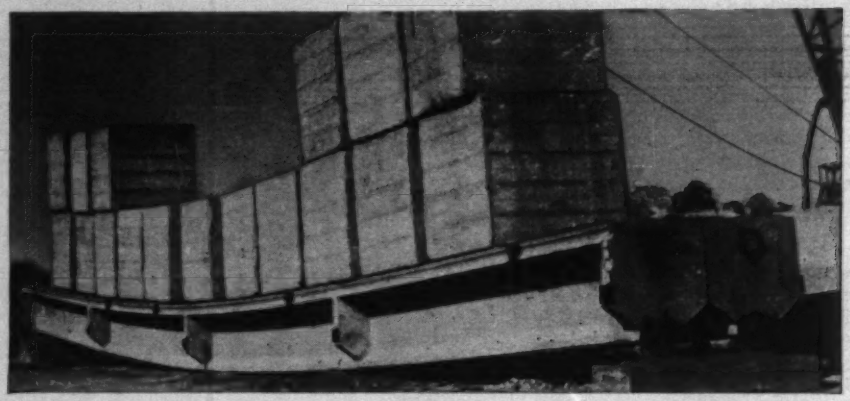
Steel

ARMCO DRAINAGE & METAL PRODUCTS

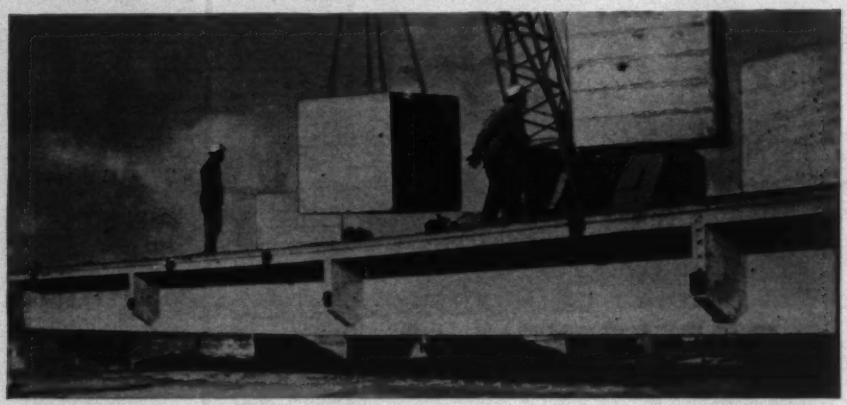
Subsidiary of ARMCO STEEL CORPORATION

OTHER SUBSIDIARIES AND DIVISIONS: Armco Division • Sheffield Division • The National Supply Company • The Armco International Corporation • Union Wire Rope Corporation

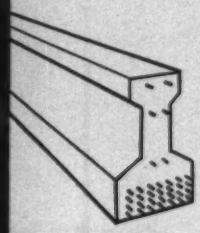
START OF TEST LOADING on two 80-foot prestressed girders. Each contains 26 Leschen Prestress Strands under tension.



153-TON LOAD—more than four times design load. Deflection was 24 inches with no failure of concrete or strand. Test made for acceptability of 1400 girders for South Vietnam construction project.

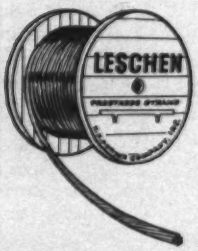


LOADS REMOVED—approximately 85% recovery of deflection immediately. Only hairline cracks evident. Designer—Capital Engineering Corp.; General Contractor—Johnson, Drake & Piper of Vietnam, Inc.; Technical Assistance—Freysinnet Co., Inc.



TALK WITH A NEARBY PRODUCER OF PRESTRESSED CONCRETE

He can discuss technical problems, point to examples of prestressed construction in your area, and advise on costs and delivery of beams from his yard.



OR WRITE LESCHEN

Leschen supplies producers with the tensioning material—prestress strand. To insure uniform production of highest quality tensioning steel, Leschen has installed the world's newest and most modern wire mill and other specialized equipment. Write for literature giving typical uses and engineering data.

Leschen Wire Rope Division, H. K. Porter Company, Inc., St. Louis 12, Missouri.

PRESTRESSED BEAM WITHSTANDS 4X DESIGN LOAD!

Prestressed concrete is unique. Its properties are a delight to creative architects and engineers. Thinner sections, longer spans, lower depth-to-span, longer cantilevering without ballast beams, reduction in weight, economy, architectural beauty. These and other advantages are a challenge to creative designers.

LESCHEN WIRE ROPE DIVISION **PORTER** ***H. K. PORTER COMPANY, INC.***

PORTER SERVES INDUSTRY with steel, rubber and friction products, asbestos textiles, high voltage electrical equipment, electrical wire and cable, wiring systems, motors, fans, blowers, specialty alloys, paints, refractories, tools, forgings and pipe fittings, roll formings and stampings, wire rope and strand.

Bidding is Lively on Bridges

Relocation of the Winnfield-Tullos Hwy. (Rt. La-US 84) at the Winn-La-Salle Parish Line west of Tullos, La., will require construction of two bridges and widening of the existing railroad overpass.

Unit prices seesawed between the two low bidders. Hall & Holland, Montgomery, La., had the scant 1.2% advantage needed to take the $677,459 State Department of Highways award.

A bridge over Castor Creek will have seven I-beam spans of 60 ft each, and one composite welded span of 100 ft. A relief bridge, about 500 ft east, will have eight I-beam spans at 60 ft each. Total length of bridges is 1,002 ft, and clear roadway width 28 ft.

The existing Tullos overpass consists of four reinforced concrete deck girder spans at 30 ft each, and one at 40 ft. The roadway will be widened and paved from its existing 24 ft width to 28 ft. Contractor must maintain traffic while work is going on.

Total project length, including new 24 ft wide approaches with portland cement concrete pavement, is 1.856 miles.

Concrete bridge deck and handrail on the composite welded span will be lightweight concrete. Earth fill across creek bottom will be up to 20 ft in height.

Both Class A concrete and Class Y (lightweight concrete) must attain a compressive strength of 3,000 psi at 28 days. Class A must contain a minimum of six bags of cement per cu yd, and 5.5 gal of water. Lightweight concrete must contain a minimum of 5.5 bags of cement per cu yd, and six gallons of water.

The contractor must furnish all the materials. Rail and truck transportation is accessible to the site, with the railroad only half a mile away.

The bidding included:

1C Hall & Holland, Montgomery La	$677,459
2 L. H. Bossier, Inc., Alexandria, La	685,837
11 Austin Bridge Co., Baton Rouge, La	804,494

Bids: 2-24-60 Items	Unit	Quantity	Unit Price 1 C	Unit Price 2
Excavation, common	cy	29,273	$0.35	$0.35
drainage	cy	1,752	0.45	0.50
special borrow	cy	282,542	0.40	0.40
Sodding, slab	sy	88	1.50	1.00
mulch	cy	3,289	1.30	1.40
Watering	Mgal	139.61	3.00	3.00
Seeding	lb	420	3.00	3.00
Fertilizing	lb	17,800	0.06	0.05
Clear & grub	ls	job	6,000	9,000
W G surf crse, shoulders	cy	3,886	3.75	3.75
ramps	cy	401	3.75	3.70
Port cmt conc pavement	sy	154	6.00	8.00
	sy	19,404	5.00	5.30
Split slab construction	sy	278	1.00	5.60
Bit mix for hot application, binder course	t	421	8.00	7.00
wearing course	t	870	8.00	7.00
Bit tack coat	gal	229	0.20	0.20
Concrete, class A	cy	954.91	$52.00	$56.00
class Y	cy	81.18	62.00	65.00
Steel, deformed reinf	lb	198,020	0.14	0.14
fabricated carbon	lb	138,388	0.17	0.20
silicon	lb	691,080	0.17	0.20
structural low alloy	lb	89,082	0.17	0.20
Timber, treated	Mfbm	0.376	500.00	300.00
RC culv pipe, 18"	lf	310	3.50	3.20
24"	lf	156	5.90	5.00
30"	lf	88	8.00	8.00
36"	lf	196	10.00	9.00
60"	lf	240	19.75	17.50
Precast concrete piles, 16"	lf	3,635	8.50	7.00
18"	lf	1,560	11.00	10.00
24"	lf	960	17.50	17.00
Jetting piles	ea	137	0.10	0.10
Unloaded conc pile tests	ea	4	1,750	2,500
Loading test piles	ea	4	100.00	50.00
Pilot holes	ea	137	1.00	0.10
Stl rail cattle guards, tp A	ea	1	800.00	1,000
Concrete approach slabs	sy	373.78	10.00	8.00
Fence, new barbed wire	stn	92.60	23.50	27.00
new comb mesh & barb wire	stn	89.00	25.00	27.00
Gates, single swing drwy	ea	5	50.00	50.00
Concrete handrail	lf	2,116.75	5.00	5.00
	lf	139	6.00	6.00
Right of way markers	ea	49	6.00	6.00
Conc revetments, cast in pl	sy	5,825	4.25	4.00
Old pavement, remove	sy	5,807	1.50	0.50
comb curb & gut, remove	lf	2,190	0.50	0.20
Signs & barricades	ls	job	5,000	2,000
Port cmt pvmt widening	sy	1,008	5.00	6.00
Shear connectors	ls	job	1,000	1,000
Sand	cy	8,431	3.00	1.50
Haul salvaged matl	ls	job	3,000	300.00
Remove bridges	ls	job	8,025	6,760
& reloc bldgs & misc structures	ls	job	1,100	950.00
Moving bldgs & misc structs	ls	job	0.00	0.00

Commence: About 4-4-60
Completion schedule: 300 working days
Liquidated damages: Actual engrg expenses for excess time

Park Pool Area Averages Cost of $108 per Person

Mentor, Ohio, is spending $107.75 per person for a swimming pool, wading pool, concrete deck and bathhouse in Mentor Park. Green-Smith-Associates, Painesville, Ohio, is the consultant.

The city's award at $113,135, to Lunka Bros. Construction Co., Painesville, breaks down this way:

T-shaped pool, 47x185 ft, with 35x40 ft diving bay	$70,050
Wading pool, 20x47 ft	4,950
1-story bathhouse, 37x72 ft, with concrete block walls and a wooden trussed hip roof	38,135
Total cost	$113,135*

* Includes a concrete deck with an area of 11,800 sq ft.

In a design area of 15 sq ft per bather, the pools will accommodate 660 bathers. The combined pool and deck area is designed for 1,050 persons, in 20 sq ft per person.

The pool walls are steel; the floors are 6-in. reinforced concrete. All site work—fencing, deck drains and pool equipment—are included in the contract.

Bathhouse area is approximately 2,900 sq ft; cubage is about 23,000 cu ft. Approximate costs are $13.15 per sq ft, $1.66 per cu ft and $57.75 per bather. Construction costs break down this way:

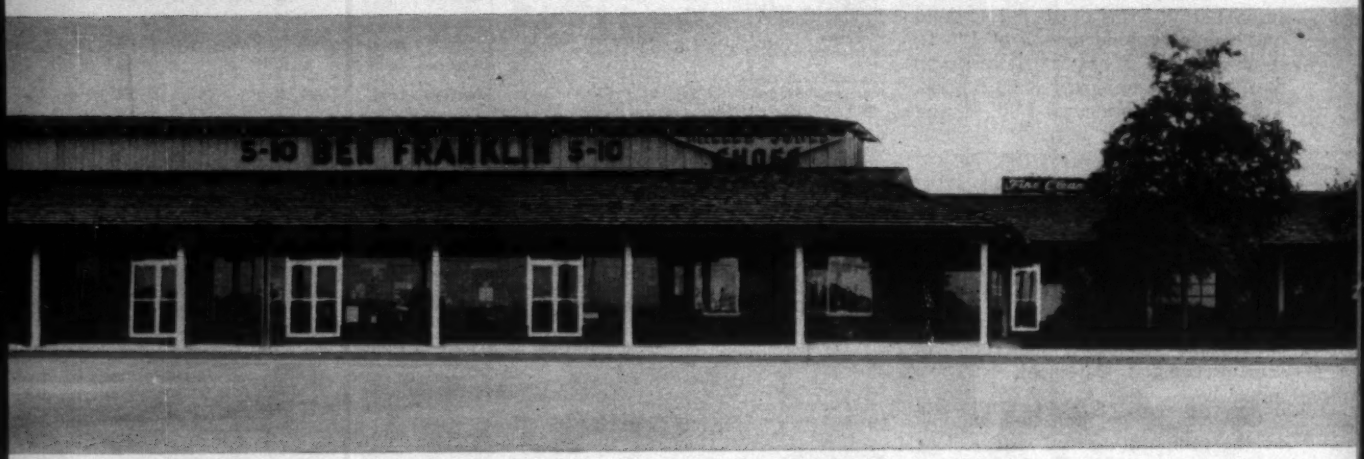
Bids: 3-4-60 Items	Contract Costs	% of Total	Cost per* sq ft	Cost per* cu ft
Size			2,900*	23,000*
Exc & site improvements	$810	1.34	$0.18	$0.022
Foundations	250	0.88	0.09	0.011
Cement finish work	1,515	3.97	0.52	0.066
Exterior masonry	5,340	14.00	1.84	0.232
Carpentry & millwork	4,880	12.80	1.68	0.212
Sash & glazing	550	1.44	0.19	0.024
Roofing	775	2.03	0.27	0.034
Insulation	1,240	3.25	0.43	0.054
Misc iron & orna metal, bag rails, etc	670	1.76	0.23	0.029
Ceramic tile in showers, colored conc floors, incl cement finish	925	2.43	0.32	0.040
Painting	1,375	3.61	0.47	0.059
Finish hardware	400	1.05	0.14	0.017
Plumbing	11,000	29.84	3.79	0.479
Elec work & lig fixtures	2,100	5.51	0.72	0.091
Metal partitions, shower stalls, etc	1,855	4.86	0.64	0.081
Turnstiles	400	1.05	0.14	0.017
Total principal construction items	$33,735	88.80	11.65	1.468
Other costs, not itemized	4,350	11.40	1.50	0.189
Total contract cost	$38,135	100%	$13.15	$1.657

* Approximate

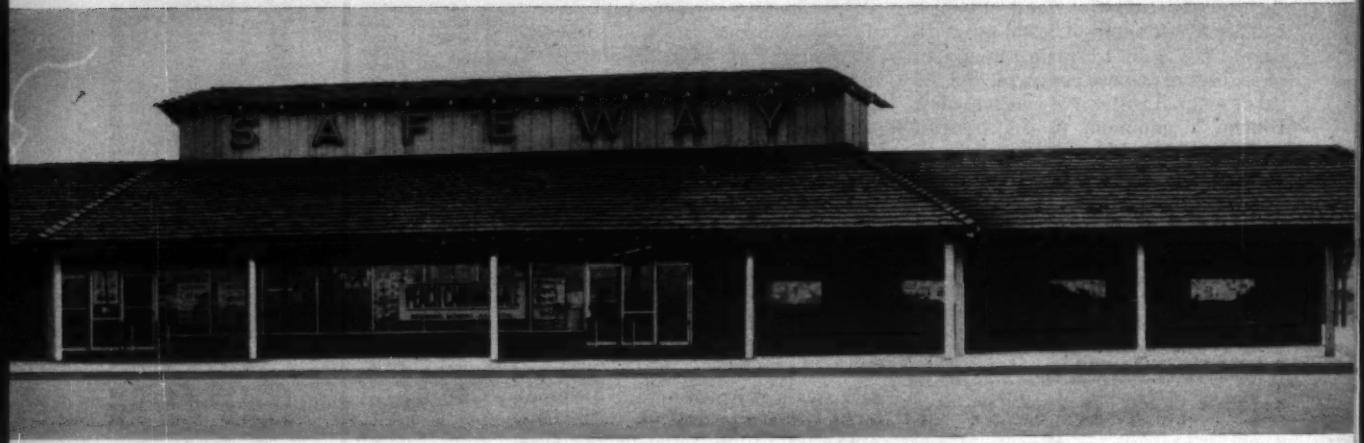
Three Year Trend, South Carolina Highway Prices

Selected Items	Unit	Average Unit Prices for Fiscal Years 1956-57	1957-58	1958-59
Asph for prime coat	gal	$0.184	$0.140	$0.14
Base course, earth type gnd surf matl	cy	0.500	0.588	0.62
pit mat	cy	0.400	0.393	0.45
stab aggr w prime, 10" uniform	sy	1.09	1.39	2.25
earth asph	sy	3.30	5.00	4.30
Bit surf, dbl trt, tp 1-6 single trt, w prime, tp I, aggr #3	sy	0.34	0.335	0.32
	sy	...	0.244	0.226
Binder crse, asph conc type I	t	...	6.01	5.85
Brick masonry	cy	67.50	80.00	66.66
Catch basin, type 1	ea	191.55	187.57	189.52
type 2	ea	284.16	293.66	295.57
Cmt rubble masonry	cy	40.00	50.00	39.00
Clear & grub plts	ac	75.95	69.60	110.57
Conc block masonry	cy		70.00	35.00
curb, 9x15"	lf	1.91	1.72	1.97
curb & gut, 3'-9"	lf	2.08	2.10	2.26
driveway, 8" uniform	sy	4.70	5.20	5.05
gutter, 12" bottom	lf	3.25	2.62	3.50
24" bottom	lf	3.35	3.26	3.53
sidewalk, 4" uniform	sy	3.25	3.29	3.27
struct, cl A	cy	61.35	58.90	59.49
cl B	cy	71.66	150.00	100.00
steps, cl B	cy	80.00	96.66	106.20
Drop inlet, 24x24"	ea	189.00	200.00	167.50
Excavation, uncl	cy	0.40	0.407	0.46
Fertilizer (5-10-5)	t	52.10	48.68	54.84
Junction box, 24x24"	ea	132.41	111.25	111.66
Manhole	ea	174.36	182.50	217.72
adjust	ea	53.07	40.84	65.00
RCP culv, 15"	lf	2.70	2.73	2.67
18"	lf	3.56	3.57	3.55
24"	lf	5.67	5.69	5.55
ext str	lf	6.57	6.27	5.93
30"	lf	8.03	8.45	8.15
ext str	lf	8.46	9.39	8.90
36"	lf	10.34	10.98	10.54
ext str	lf	10.50	12.29	10.95
48"	lf	14.63	15.64	15.30
ext str	lf	15.37	18.49	18.27
60"	lf	23.11	23.48	24.13
ext str	lf	22.00	30.00	23.83
Struct plate pipe, 8 ga, 120"	lf	71.16	73.16	74.33
10 gage, 96"	lf	52.00	55.00	56.66
120"	lf	62.00	75.00	72.50
Resurf, AC surf crse, type 2, hot laid	t	5.46	5.32	5.47
hot plt mix sand asph	t	4.00	3.65	3.76
hot laid AC bind crse, type 2	t	5.10	5.83	5.70
Riprap slope protection	cy	9.71	9.12	10.22
Scarify, mix, etc	Msy	45.70	46.53	50.70
Seeding slopes & shdrs	Msy	59.00	58.57	67.14
Prstr conc beams, 60'	ea	1,358	1,274	1,087
70'	ea	1,600	1,650	1,338
Piling, timber, creo	lf	3.33	3.15	2.74
untr	lf	2.00	2.00	2.50
prstr conc, octag, 21"	lf	13.75	13.41	11.91
prstr conc, 18"	lf	14.50	9.33	12.15
steel bearg, 10' at 42#	lf	6.81	7.44	6.06
Riprap slope protection	t	8.45	8.00	8.87
Slope drains, conc block	lf	2.30	2.49	2.16
Steel reinf, struct	lb	0.133	0.132	0.125
Timber, treated struct	Mbm	400.00	466.66	433.33

On a dry lake bed, 12 miles southwest of Kansas City, Vic Regnier built himself

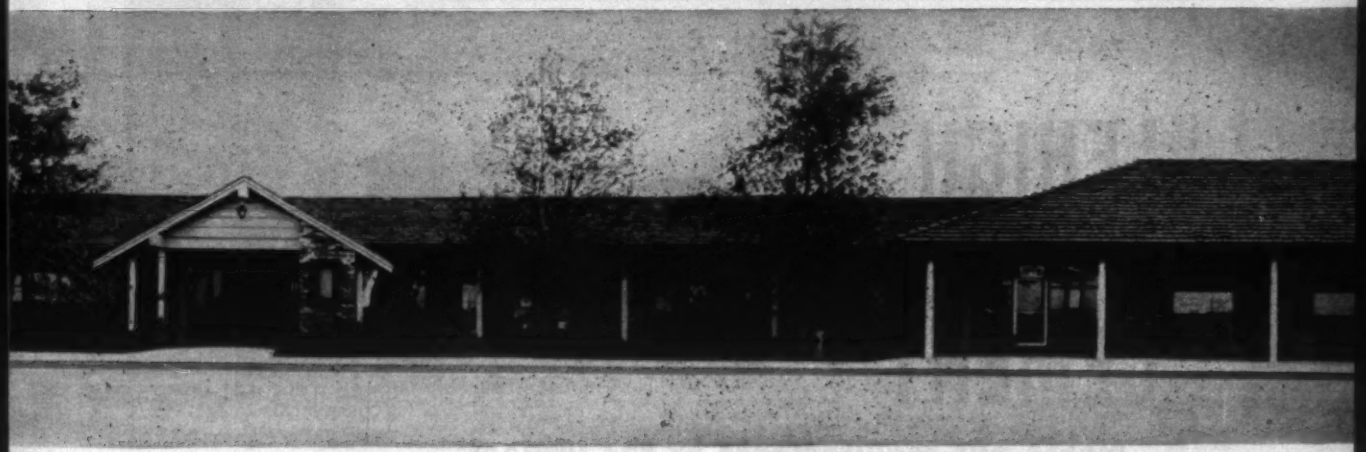


This is Phase One. It includes 21 stores, 12 offices and a 13,000 sq. ft. basement



Architect: John F. Granstedt, Kansas City, Mo. **Structural Engineers:** Uri Seiden & Associates, Kansas City
Contractor: Vic Regnier Builders, Inc., Kansas City **Structural Steel Fabricator:** Hankens Steel Erection Co., Belton, Mo.

800 feet of ranch style shopping. Its name: Ranch Mart. Its cost: $1,250,000.



auditorium. Phases Two and Three will add store and office space, plus bowling alley and large department store. Because Ranch Mart is located in the heart of the tornado belt, Regnier gave it a strong backbone of steel — 500 tons of USS Steel. "Experience has shown us," says Regnier, "that structural steel gives a building permanent strength. It's also the fastest, most economical material for tying a building together." Vic Regnier is sold on steel and U.S. Steel's ability to deliver, fast, anywhere in the country.

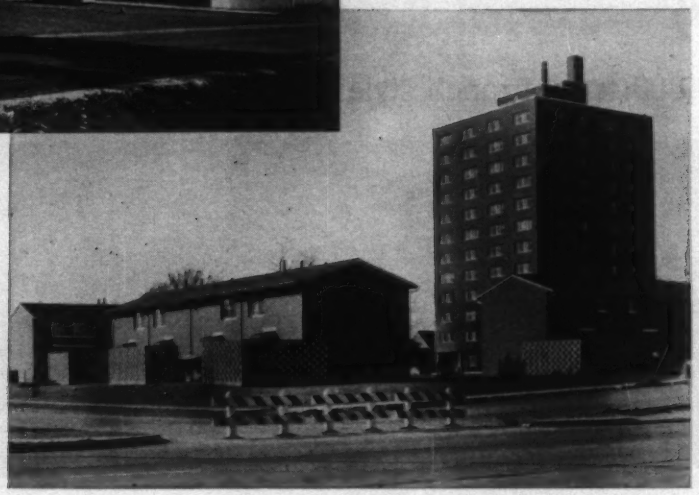
USS is a registered trademark

United States Steel Corporation—Pittsburgh
Columbia-Geneva Steel—San Francisco
Tennessee Coal & Iron—Fairfield, Alabama
United States Steel Supply—Steel Service Centers
United States Steel Export Company

United States Steel

FOR ALL 3 PROJECTS:
Mason Contractor: Axel H. Ohman, Inc.
Dealer: Wunder Klein Donohue Co.
both of Minneapolis, Minn.

U. S. Department of Interior, Bureau of Mines Building, Minneapolis, Minn.
Architect: Bettenburg, Townsen, Stolte & Comb, St. Paul, Minn.
Contractor: Maurice Mandel, Inc., Minneapolis, Minn.



LEHIGH MORTAR CEMENT

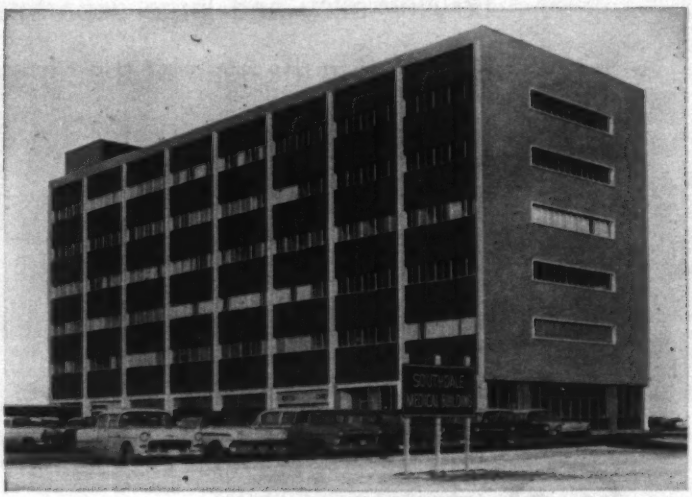
"... meets our requirements to the utmost"

Lyndale Homes Housing Project, Minneapolis, Minn.
Owner: City of Minneapolis
Architect: Thorshov & Cerney, Inc., Minneapolis, Minn.
Contractor: Johnson, Drake & Piper, Inc., Minneapolis, Minn.

• Eight years ago mason contractor Axel Ohman reported that . . . "The economy and workability of Lehigh Mortar Cement convinces us that it meets our requirements to the utmost. It has good bonding qualities along with absence of shrinkage. We are not alone in this opinion as owners, architects and inspectors have also made favorable comments."

That Mr. Ohman still prefers Lehigh Mortar Cement is proved by its use in the three recently completed quality masonry projects pictured here.

Whether a job is big or small, modern or traditional, Lehigh Mortar Cement can help you build strong, weathertight masonry walls. Lehigh Portland Cement Company, Allentown, Pa.



Southdale Medical Building, Edina, Minn.
Owner: Southdale Management, Inc.
Architect: Victor Gruen & Associates, Los Angeles, Calif.
Contractor: C. F. Haglin Construction Co., Minneapolis, Minn.

LEHIGH CEMENTS

LEHIGH MORTAR CEMENT • LEHIGH EARLY STRENGTH CEMENT • LEHIGH PORTLAND CEMENT • LEHIGH AIR-ENTRAINING CEMENT

Materials Prices

Monthly Market Quotations by ENR Field Reporters

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS* billet	RIVETS ½-in. struc-tural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$5.50	$5.30	$5.675	$13.25	.....	$110.00	$120.00	$6.975	$9.75	$6.60	.....
Chicago Area	5.50	5.30	5.675	13.25	$6.50	110.00	120.00	6.975	9.75	6.60	.....
Pittsburgh Area	5.50	5.30	5.675	13.25	6.50	110.00	120.00	6.975	9.75	6.60	$14.75
Buffalo Area	5.50	5.30	5.675	13.25	6.50	110.00	120.00	6.975	9.75	6.60	14.75
Cleveland	.....	.....	5.675	13.25	6.50	.....	.....	.....	.....	.....	14.75
Youngstown Area	.....	.....	5.675	.....	.....	.....	.....	.....	9.75	.....	.....
Geneva	5.50	5.30	.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles	6.30	.....	6.375	.....	6.80	.....	.....	.....	9.75	6.875	.....
Pueblo	.....	.....	.....	.....	.....	.....	.....	60.75	9.75	6.60	.....

* Fairless Works, $5.575.

IRON AND STEEL PRODUCTS—F.O.B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	Extras W	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	5 tons to carload lot Rail steel	Extras, New York:	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh, 3.4 lb.	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill	
Atlanta	7.29–8.29*BvV*		8.75	$8.75		$53.00*S*	$57.00*S*		
Baltimore	9.70		9.00*T*	.....		44.50	49.00		
Birmingham	9.00*tty*		8.51–9.04*tyV*	8.51–9.04*ty*		61.00*pX*	67.00*pX*		
Boston	8.21–9.31*FxyV*		8.75*t*	8.75*t*		49.80*K*	54.00*K*		
Chicago	7.31–7.86*yyV*		7.00–7.10*yuV*	7.00–7.10*yuV*		52.00*tU*	58.00*tU*		
Cincinnati	7.87–8.42*tvyyV*		8.16*tt*	.....		44.80*Kq*	49.00*mnKq*		
Cleveland	7.74–8.79*yyV*		7.14*tt*	.....		48.80*KL*	51.00*KL*		
Dallas	7.71–9.40*tvV*		9.00	9.00		44.00*m*	48.50*w*		
Denver	10.16*cK*		9.25*c*	.....		63.00*m*	69.00*m*		
Detroit	7.87–8.42*PMvVy*		7.37*O*	11.85*Q*		67.00*O*	74.00*O*		
Kansas City	..*vV*		8.10*N*	.....		51.00	55.00		
Los Angeles	8.44–9.80*HttvV*		7.35*frt*	.....		55.00*S*	64.00*S*		
Minneapolis	7.78–8.17*yyV*		9.30*T*	9.30*T*		44.80*K*	49.00*K*		
Montreal	7.90–8.80*tt[F]vyyV*		7.00/7.70*PGt*	7.00/7.30*PGt*		65.70*h*	70.20*h*		
New Orleans	.....		8.00*mhtt*	.....		50.00*K*	55.00*K*		
New York	8.02–8.84*Vrr*		8.60*tv*	8.60*v*		53.00*m*	59.00*mw*		
Philadelphia	7.60–8.40*tvyyV*		8.25*uy*	8.25*y*		44.50*tU*	55.20*tU*		
Pittsburgh	7.35–7.90*uyV*		7.35*y*	.....		58.50*trw*	64.50*trw*		
St. Louis	7.79–8.34*tryV*		7.75*t*‡*Q*	7.75*t*‡*Q*		61.00*mnK*	67.00*mnK*		
San Francisco	8.43–10.34*ttvV*		9.85*S*‡	.....		53.00*S*	58.00*S*		
Seattle	8.48–9.72*aDvV*		8.85*DM*	.....		67.00*t*‡*D*	73.50*t*‡*D*		
Toronto	9.20*H*		7.85	7.85		44.00*qqJ*	38.40*qJ*		

Quantity extras per cwt: Item: 10,000# and over, base; 5,000—9,999#, +10¢; 2,000—4,999#, +25¢; 1,000—1,999#, +$1; 400—999#, +$1.75; 100—399#, +$1.75, under 100#, +$1.75. Order: 30,000# and over, base; 10,000—29,999#, +10¢; 5,000—9,999#, +25¢; 2,000—4,999#, +50¢; 1,000—1,999#, +$1; 400—999#, +$2; under 400#, +$3.

EXTRAS, per cwt—Quantity (applies to LCL ship-ments only): under 1,000#, +$1.50; 1000–1999#, +$1.25; 2000–4999#, +$1.00; 5000–9999#, +60¢; 10,000–19,999#, +50¢; 20,000–29,999#, +30¢; 30,000–39,999#, +20¢; 40,000–49,999#, +10¢; 50,000# & up, base. Sizes: #3 +$1.00; #4 +70¢; #5, #6 +50¢; #7 +$1.50; #8, #9, #10, #11 +40¢. Bending: heavy, +60¢; light +$1.50. Requirements (details and placing from dealers or users): over 500 tons, base; +4¢; 201–500 tons, +5¢; 101–200 tons, +10¢; 51–100 tons, +15¢; 21–50 tons, +25¢; 5–20 tons, +35¢; 1–4 tons, +50¢; under 1 ton, +75¢. Lots not over $100: 5–19 tons, +$1.50; 1–4 tons, +$2.00; under 1 ton, +$3.00. Lots not over $300: under 5 tons, +$1.00; lots not over $600, Min. charge $25. Design only: +6¢.

4 × 18 in., No. 8 & 10 wires— Joliet, Ill.; Donora, Pa.; Monessen, Pa. $7.04

4 × 12 in., No. 8 & 12 wires— Joliet, Ill.; Donora, Pa.; Monessen, Pa. $3.62

6 × 6 in., No. 8 & 8 wires— Joliet, Ill.; Donora, Pa.; Monessen, Pa. $4.17

*t Delivered **r Aver. of Canadian & American *f add 4% sales tax *a 2000–4999# *b 10,000–19,999# fob city *c 20 tons or over *d 10,000–29,999# *e Intermediate struct'l *f Ind. delivery in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add provincial and municipal sales taxes *j Intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p 500 sq. yd. or more. *q 2.5 lb *r less 2% disc. for cash *s 10,000# item in 20,000# order *t less ½% disc. 10 days *u add 10¢ switch *v incl 15¢ del. *w truck lots. *x add 2% sales tax *y add 10¢ del. *z add 10¢ del. *A American made. *C Canadian made. *D less ½% for cash. *E over. *F Federal tax exempt for bldgs. *G add 10¢ del. *H $.85 without tariff charges. *I 3 lb $80.00. *J 4 lb $47.80. *K less 2% disc. 10 days *L F.a.b. Youngs-[illegible] 5,000–9,999# *N 2,000–19,999# *O 100 sy lots *Q 5 tons to CL *R; revised *S less 2% disc. 10th *T less ½% disc., 10th of mo. *U less 2% disc 10 days [illegible]ding to type and size *W Chicago, Cincinnati, Cleveland, Dallas, Detroit, New York, Philadelphia, St. Louis, and Pittsburgh.

[illegible]JING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEX‡a	ASBESTOS CEMENT PIPE Z per lin. ft. 6" Pressure Cl. 150	ASBESTOS CEMENT PIPE Z per lin. ft. 12" Sewer Cl. 1500	CLAY SEWER PIPE Per ft., delivered, car load ASTMC 13–55 8 in.	12 in.	ASTMC 200–58T 24 in.	36 in.	CLAY DRAIN TILE† Per 1,000 ft., car load lots, f.o.b. ASTMC 4–55 6 in.	8 in.	CONCRETE SEWER PIPE‡ Per ft., delivered ASTMC 14–58 12 in.	24 in.
Atlanta	130.5	$1.61/1.69	$2.36/2.48	$0.55*r*	$1.04*r*	$4.50*r*	$12.60*r*	$209.00*sr*	$334.00*r*	$0.95*m Kr*	$3.75*m Kr*
Baltimore	140.1	1.61/1.69	2.19/2.30	.665	1.20	3.05	12.71	187.80	289.20	1.01	2.75
Birmingham	135.8	1.61/1.69	2.26/2.37	.50*r*	.95*r*	4.14*rv*	13.50*rv*	295.00*rz*	430.00*rz*	1.75*rS*	2.75*rS*
Boston	143.1	1.63/1.71	2.19/2.30	.784*rtL*	1.512*rtL*	6.255*rtM*	.....	215.40*r*	330.60*r*	1.56*S*	3.47*S*
Chicago	139.8	1.61/1.69	2.19/2.30	.93*rm*	1.78*rm*	7.53*rm*	21.16*rm*	220.00*Br*	330.00*Br*	1.30	4.00
Cincinnati	135.5	1.63/1.71	2.19/2.30	.618*r*	1.188*r*	4.725*r*	13.40*r*	270.00*r*	400.00*r*	.85*rAB*	3.25*rAB*
Cleveland	141.6	1.63/1.71	2.19/2.30	.80*RCN*	1.15*RBC*	7.78*RBC*	24.15*RC*	179 .40*mBC*	276.60*mBC*	1.35	3.60*P*
Dallas	137.8	1.63/1.71	2.26/2.37	.575‡*B*	1.09‡*B*	4.75‡‡*B*	10.53‡‡*B*	.....	.....	1.25*BD*	2.95*BD*
Denver	144.9	1.71/1.80	2.36/2.48	.56*mr*	1.00*mr*	4.98*r*	.....	460.00*mr*	640.00*mr*	1.05*m*	3.50*m*
Detroit	141.9	1.61/1.71	2.19/2.30	.97*mk*	1.86*mk*	7.48*mk*	19.95*mk*	212.00*mk*	327.00*mk*	1.40*k*	5.25*k*
Kansas City	139.9	1.61/1.71	2.26/2.37	.62*r*	1.12*r*	9.32*tkr*	16.80*r*	315.00*r*	625.00*r*	1.60*r*	3.55*r*
Los Angeles	145.6	1.70/1.79	2.19/2.30	.525‡	1.75*hiS*	7.19*hS*	16.90*hiS*	410.00*iS*	590.00*iS*	1.24*rS*	3.60*rS*
Minneapolis	144.8	1.67/1.75	2.26/2.37	1.00*nB*	1.80*nB*	7.75*nB*	.....	.....	.....	2.19*DFH*	6.31*DFH*
Montreal	.....	.....	.....	1.13*u*	2.00*u*	7.00*u*	13.50*u*	283.00	545.00	1.17*D*	3.11‡*pD*
New Orleans	132.3	1.61/1.69	2.26/2.37	.56*tr*	1.078*r*	5.65*r*	.....	249.50*rr*	366.00	1.41*iR*	3.76*i*
New York	138.5	1.63/1.71	2.19/2.30	.94	1.76*R*	12.89	33.61	240.81	369.84	1.50‡*B*	3.60‡*B*
Philadelphia	137.8	1.61/1.69	2.19/2.30	.72‡	1.40‡	9.02‡*v*	24.66‡*v*	220.00‡	330.00‡	1.50‡*h*	4.00‡*h*
Pittsburgh	142.7	1.63/1.71	2.19/2.30	.94*K*	2.01*K*	8.79*K*	24.15*K*	190.00	295.00	1.68*Dh*	3.93*DB*
St. Louis	136.9	1.61/1.69	2.26/2.37	.65*r*	1.27*r*	5.10*r*	12.95*rS*	200.00*r*	350.00*r*	1.75*i*	4.05
San Francisco	148.6	1.70/1.79	2.19/2.30	.861*d*	1.861*d*	7.53‡*d*	18.00‡*d*	360.00‡*f*	520.00‡*f*	1.05‡*Q*	3.30‡*Q*
Seattle	149.0	1.71/1.80	2.19/2.30	.88*hk*	1.85*hk*	7.61*k*	.....	260.00*ek*	.....	1.95*hy*	4.55*hy*
Toronto	.....	.....	.....	.80*F*	1.50*F*	6.00*F*	.....	185.00*F*	305.00*F*	1.37*F*	5.19*F*

"WROUGHT STEEL PIPE" (Full standard weight) Discount from list; see footnote					
		Butt Weld, Galv. %	Lap Weld, Galv. %	Butt Weld, Black %	Lap Weld, Black %
¾ in. to 3 in.	Mill				
Beaver Falls, Pa.		+19.75‡	+14.50‡	+1.75‡	+.25‡
Youngstown, O.		+19.75	+14.50	+1.75	+.25
Indiana Harbor, Ind.		+19.75	+14.50	+1.75	+.25
Lorain, Ohio		+19.75	+14.50	+1.75	+.25
Aliquippa, Pa.		+19.75	+14.50	+1.75	+.25
Sparrows Pt., Md.		+19.75	+14.50	+1.75	+.25
3½ in. to 6 in.					
Beaver Falls, Pa.		+13.50	+13.50	+3.50	+3.50
Youngstown, O.		+13.50	+13.50	+3.50	+3.50
Indiana Harbor, Ind.		+13.50	+13.50	+3.50	+3.50
Lorain, Ohio		+13.50	+13.50	+3.50	+3.50
Aliquippa, Pa.		+13.50	+13.50	+3.50	+3.50
Sparrows Pt., Md.		+13.50	+13.50	+3.50	+3.50
8 in. to 12 in.					
Beaver Falls, Pa.		13.75	13.75	3.75	3.75
Youngstown, O.		13.75	13.75	3.75	3.75
Indiana Harbor, Ind.		13.75	13.75	3.75	3.75
Lorain, Ohio		13.75	13.75	3.75	3.75
Aliquippa, Pa.		13.75	13.75	3.75	3.75
Sparrows Pt., Md.		17.25	13.75	0.75	+.75‡

b Continuous s Seamless

‡ Extra quality. ‡‡ delivered. *f add 4% sales tax *a PRICE INDEXES or CENTRIFUGAL CAST IRON PIPE (Include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 125.8; Burlington, N. J., 134.6. For explanation of index see ENR Sept. 29, 1955 page 139. *b Extra strength. *c 44-in., $130. *d SS381-A. *f 21 in. *g culvert pipe: reinf., ASTM C 76–58. *h reinf., ASTM C 76–54. *i reinf., ASTM C 76–55. *j centrispun. *k less 2% disc. for cash. *l fob plant. *m truck del. *n LCL del., fob truck. *p less 9% disc. 10th. *q freight allowed to destination in city. *u 35,000# minimum. *v less 2% disc. 10 days. *x 1 ft lengths. *y CSA A 60. *r standard strength. *w SS: add 20% for d.s. *x fob city. *y Reinforced. *z Upper value in range based on both truck lots and less than truck lots, fob city; lower value truck lots delivered. *A single strength. *B truckload. *C less 2% disc. 15th. *D ASTM 76–57. *E less 1% disc. 10 days. *F less 2% disc. 30 days. *G LCL. *H CL. *I fob origin, freight allowed. *J reinf. B14–15. *K Less 2% disc. 15 days. *L ASTM 13–57. *M ASTM 200–57. *N 2 ft lengths. Truckiots. *O add 2% Sales Tax. *P 18 in. *Q less 1% disc. 10th. *S ASTMC 72, 12" 1.55, 24" 4.00.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list at consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): Butt Weld ⅛ in., 31¢; ¼ in., 4¢; ⅜ in., 4¢; ½ in., 83½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 22¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 82¢; 4 in., $1.00; 5 in., $1.48; 6 in., $1.92. continuous weld grades as lap weld prices. Add freight, 3% transport tax for destination price. † Production discontinued November 1957

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 68.54, galv., + 98.77; 1¼ in. black, + 68.84, galv., + 98.53, 1¼ in. black, + 67.78 galv., + 91.22; Lap Weld—2½ in. to 3 in. black + 67.98 galv. + 98.77; 4½ in. to 6 in. black + 84.74 galv. + 90.68 Add freight rates plus 3% transportation tax to get destination price.

See following ENR issues for OTHER PRICES:

- Wood Products, Glass, Explosives, Chemicals: Last, May 19; Next, June 16
- Clay Products, Lime, Plaster, Paint, Roofing: Last, May 26; Next, June 30
- Wage Rates, Building Board, Lath, Insulation: Last, June 2; Next, June 30
- Cement, Aggregate, Ready Mixed Concrete, Asphalt: Last, June 9; Next, July 7

Construction Reports

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, MARIE MORAVSIK, ELAINE CHOMYAK, ELIZABETH WERRA, ELEANOR QUERET, Reports, J. H. WEBBER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION—BA

† **R. I., Quonset Point**—JET ENGINE PLATING SHOP—BA 6/24—Dist. P. Wks. Office, First Naval Dist., 495 Summer St., Boston, Mass., jet engine plating shop, Bldg. 60, U. S. Naval Air Station, NBy 31294, Spec. 31394/60. $25,000-$100,000. Plans deposit $40.

▲ **MASSACHUSETTS**—BA 6/28—Commonwealth of Massachusetts, Dpt. P. Wks., 100 Nashua St., Boston, Lexington-Waltham—wid'n. section Rte. 128, U-272(45). $3,400,000. Plans deposit $30.

BUILDINGS—BA

▲ **Mass., Sudbury**—REGIONAL HIGH SCHOOL—BA 6/24—Lincoln-Sudbury Regional Bldg. Comn., Lincoln, Mass., regional high school. $1,000,000. Plans deposit $25. Anderson, Beckwith & Haible, 11 Beacon St., Boston, Mass., archts. CD 9/17/59.

▲ **Mass., Holyoke**—INFIRMARY—BA 6/30—Providence Home for Children, c/o Diocese Springfield, Chancery Office, 62 Elliot St., Springfield, Mass., (selected list bidders), infirmary, Mount Marie, Springfield Rd. $1,-750,000. Eggers & Higgins, 100 E. 42nd St., New York, N. Y., archts. CD 4/7.

HEAVY CONSTRUCTION—LB & CA

▲† **Kirkland Constr. Co., Inc.**, 209 Bent St., Cambridge, Mass., LB $1,205,290, solid physics laboratory (FY-60), Laurence G. Hanscom Field, ENG-19-016-60-75, BEDFORD, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. Bids June 2. CD 5/3.

▲† **Poorvu Constr. Co., Inc.**, P.O. Box 237, Wellesley Hills, Mass., LB $1,313,320, est. $1,241,650, solid physics laboratory (FY)60, Laurence G. Hanscom Field, ENG-19-016-60-75, BEDFORD, MASS. U. S. Eng., 424 Trapelo Rd., Waltham, Mass. (Correction—Low Bidder). CD 6/6, under LB.

▲ **Gilbane Building Co.**, 9 Calverly St., Providence, R. I., CA $1,826,337, (8 bidders), imprv. filtration plant, City Water Supply Plant, Scituate, PROVIDENCE, R. I. City, Water Supply Bd., City Hall, Providence, R. I. Bids May 10, awarded May 31. CD 5/13, under LB.

BUILDINGS—LB & CA

▲ **Innamorati Brothers, Inc.**, 137 Clark St., Clinton, Mass., LB $1,206,000, Nashoba REGIONAL HIGH SCHOOL, Rte. 117, BOLTON, MASS. Nashoba Regional School Dist., Towns Stow, Lancaster and Bolton, Red Acre Rd., Stow, Mass. Bids June 1. CD 4/19.

▲ **Tornabene Bros. Co.**, 170 Needham St., Newton Upper Falls, Mass., LB $3,917,000, est. $3,000,000-$4,000,-000, HOME FOR THE AGED, Centre St., WEST ROXBURY, MASS. Hebrew Home For Aged, 21 Queen St., Dorchester, Mass. Bids June 3. CD 5/24.

▲ **E & F Constr. Co.**, 94 Wells St., Bridgeport, Conn., LB $3,500,000, (6 bidders), MOTHER HOUSE and NOVITIATE, Belden Hill Rd., WILTON, CONN. School Sisters of Notre Dame, c/o J. Gerald Phelan, archt., 211 State St., Bridgeport, Conn. Bids May 26. CD 5/18.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. J., Port Newark—BA 6/28—The Port of New York Auth., at the office of the Chief Engineer, Room 1100, 111 8 Ave., New York 11, N. Y., paving, wid'n. and repaving streets. Contr. PN-590.001. Plans deposit $30. CD 5/15/58 under Earthwork and Waterways.

BUILDINGS—BA

▲ **N. Y., New York**—HOUSING ADDN.—BA 7/6—Dpt. P. Wks., Rm. 2200, Municipal Bldg., New York, Zone 7, general contract, plumbing, heating and ventilating, electrical for housing addn., Bronx House of Detention for Men, 653 River Ave., Bronx Boro. Plans deposit $60. CD 3/4/59.

▲ **N. Y., New York**—HOUSES—BA 7/12—New York City Housing Auth., 299 Broadway, New York, Zone 7, Senator Robert A. Taft Houses, Section II, Proj. No. NYC-28, 672 units. Manhattan Boro. Extended Date. DeYoung & Moscowitz, 205 E. 42nd St., New York 17, N. Y., archts. CD 4/28.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany.

N. Y.—Weber Constr. Co., Inc., 133 Wall St., Schenectady, N. Y., CA $1,338,800, est. $1,691,000, 9 in. c. conc. pavt. variable width 1.72 mi., b. conc. 0.23 mi. N.Y.C. R.R. with Fuller Rd. C.R. 156 FASS 60-4 PSC 18538. Proj. S-568 (1) Albany Co.

N. Y.—Hendrickson Bros. Inc., 63 N. Central Ave., Valley Stream, N. Y., CA $2,759,865, est. $3,557,-000. 8 in. c. conc. pavt. variable width 1.28 mi., misc. work 0.0 mi., etc. 5 hy. gr. seps. 2 conc. rigid frames 70 ft., 67 ft. 2 comp. WF beams 1 plate girder Southern State Parkway (Captree State Parkway to Heckscher State Parkway). SSPRC 60-1, Suffolk Co.

N. Y.—Jess F. Howes, Sidney Center, N. Y., CA $966,-381 b. conc. 5.56 mi. Walton Village, Delaware St. SH 9268, Rock Rift-Colchester SH 1271 Colchester-Delancey, SH 1272 Rte. 10 FARC 60-32, Proj. E-845 (5), Delaware Co.

N. Y.—Green Island Contg. Co., 594 Broadway, Watervliet, N. Y., CA $1,219,712, est. $1,531,000. b. conc. 7.98 mi. Schaghticoke-Middle Falls, Rte. 1, SH 8350, Schaghticoke-Middle Falls, Pt. 2, SH 8350, Rte. 40, FARC 60-27. Proj. F-504 (11), Rensselaer and Washington Counties. Bids Apr. 21. Awarded May 23. Grand total $6,284,758. CD 4/22.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, Bids opened 6/1,

Glasgow, Inc., Glenside, Pa., LB $2,051,966 (13 bidders), dualization 5.737 mi. U.S. Rte. 202, Sect. BA, from South Branch of Raritan River to Beechwood Dr., Raritan, Readington and Branchburg Twps., Hunterdon and Somerset Counties. CD 5/12.

BUILDINGS—LB & CA

▲ **John Kennedy & Co., Inc.**, 205 E. 42nd St., New York 17, N. Y., CA est. $5,000,000. Mater Christi Diocesan HIGH SCHOOL, Crescent St., 27th St. and 21st Ave., ASTORIA, N. Y. Diocese of Brooklyn, 191 Joralemon St., Brooklyn 2, N. Y. CD 1/21.

▲ **Walter A. Stanley Constr. Co., Inc.**, Railroad Ave., Ossining, N. Y., CA Est. $3,000,000, 300,000 sq. ft. PLANT, Van Vleck Rd. and Seneca River, GEDDES, N. Y. Owner, c/o Contractor. Heavy Military Electronics Div., General Electric Co., Court St., Syracuse, N. Y., lessee.

▲ **B. J. Lucarelli & Co.**, McCarter Hy., Newark, N. J., LB $2,393,100, est. $4,500,000, HIGH SCHOOL, HOBOKEN, N. J. City, City Hall, Hoboken, N. J. Bids June 1. CD 5/24.

▲ **John McShain Inc.**, 3501 Sinclair Lane, Baltimore, Md., LB $3,735,000 (6 bidders) Calverton JUNIOR HIGH SCHOOL, BALTIMORE, MD. City, Bureau of Bldg. & Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids June 1. CD 5/27.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $53,000; other public works $88,000; Industrial buildings $110,000; other buildings $400,000. Also Foreign projects of $1,000,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported n low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.
OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

† Federal Government
▲ Project of $1,000,000 or over.
ENR Engineering News-Record
CD Construction Daily
For additional reports see Construction Daily.

SOUTH

HEAVY CONSTRUCTION—BA

† **S. C., Beaufort**—NAVY MOBILE TRAINER BLDG., etc.—BA 6/28—Dist. P. Wks. Office, Sixth Naval Dist., Bldg. No. 13, U. S. Naval Base, Charleston, S. C., Navy mobile trainer bldg. and aviation physiological training bldg., U. S. Marine Corps Air Station, NBy-29041, Spec. 29041/59. $250,000-$500,000. CD 8/28/56.

▲† **Georgia and South Carolina**—BA 8/2—U. S. Eng., 200 East St., Julian St., Savannah, Ga., power plant, appurtenant works, Hartwell Proj. Savannah River, CIVENG-09-133-60-29. CD 4/18.

BUILDINGS—BA

▲ **Ga., Newnan**—HOSPITAL—BA 6/24—Coweta County Hospital Auth., hospital, over $1,000,000. Plans deposit $100. Bothwell & Nash, 206 Roswell St., Marietta, Ga., archts. CD 7/2.

HEAVY CONSTRUCTION—LB & CA

▲ **Stone & Webster Engineering Corp.**, 1403 Roseneath Rd., Richmond, Va., design and construct $50,000,000 Gaston Hydro-electric plant, Roanoke Rapids NORTH CAROLINA. Virginia Electric & Power Co., 7th and Franklin Sts., Richmond, Va. CD 7/24.

▲ **Atlantic State Constr. Co.**, 1958 Monroe Dr. N.E., Atlanta, Ga. CA $1,008,193, water treatment plant incl. 2 story chemical bldg., settling basin, filters, 2 m.g. underground concrete clearwell, high service intake and low service pump, GREENWOOD, S. C. Comr. P. Wks., City Hall, Greenwood, S. C. Bids May 25. CD 6/2, under LB.

▲ **Wainer Constr. Co.**, P. O. Box 1172, Valdosta, Ga. CA $1,821,352. Hunter St. Viaduct, ATLANTA, GA. Fulton Co. Bd. Comrs., 165 Central Ave. S. W., Atlanta, Ga. Bids May 11. CD 4/19.

▲† **Williams-McWilliams Industries, Inc.**, 3308 Tulane Ave., New Orleans, La., CA $1,217,880 dredging outflow-inflow channel, Old River near Baton Rouge, Concordia Parish. CIVENG 16-047-60-184 LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids May 24. CD 6/1 under LB.

BUILDINGS—LB & CA

▲ **Graham Bros.**, 709 W. Grace St., Richmond, Va., CA $1,717,700, STUDENT ACTIVITIES FACILITY VPI, BLACKSBURG, VA., State Dpt. Educ., State Office Bldg., Richmond, Va., Bids May 12. CD 5/27, under LB.

▲ **Enjay Constr. Co.**, 10 Stoneybrook Lane, Newport News, Va., CA est. $2,000,000, HOUSING SUBDIVISION, NEWPORT NEWS, VA., Town & Country Realty Co., 10 Stoneybrook Lane, Newport News, Va. CD 6/2.

▲ **Reid & Hope**, Suffolk, Va., LB $1,470,000, Northeast Junior HIGH SCHOOL, PRINCESS ANNE, VA., School Bd., Princess Anne Court House, Princess Anne, Va., Bids May 26. CD 5/18.

▲ **Allied Chemical Corp.**, 61 Broadway, New York 6, N. Y., Own Forces, Over $5,000,000, PLANT ADDN., MOUNDSVILLE, W. VA.

▲ **Harry N. Forman and Rose C. Forman**, 105 E. Silver Spring Dr., Milwaukee, Wis., LB $1,600,000 POST OFFICE and GARAGE, GREENVILLE, S. C. U. S. Post Office Dpt., P. O. Dpt. Bldg., 12 and Penn Ave. N. W., Wash., D. C. Bids June 1. CD 5/26.

▲ **The Flagler Co.**, 305 Techwood Dr., NW, Atlanta, Ga., CA over $1,000,000, 150,000 sq. ft. Cheney Woods Plaza SHOPPING CENTER, SMYRNA, GA. Smyrna Land Co., 320 S. Cobb Dr., Smyrna, Ga.

▲ **The Colte Somers Co.**, Box 111, Vidalia, Ga. CA $2,239,000 4th increment, Northeast MENTAL HOSPITAL, McCLENNY, FLA. Bd. Comrs. State Institution, Robert Meyer Hotel, 315 Julia St., Jacksonville, Fla. Bids Apr. 20. Awarded May 24. CD 4/29 under LB.

▲† **Wharf Constructors, c/o Robert H. Smith Co.**, 1915 Kolifahi St., Houston, Tex., CA $1,295,078, AMMUNITION STORAGE, ANNISTON, ALA., U. S. Eng., 2301 Grant St., Mobile, Ala., Bids Apr. 26. CD 5/3 under LB.

▲† **Foster Wheeler Corp.**, 666 5th Ave., New York, N. Y., CA $530,890 (4 bidders) condenser circulating pumps for Paradise Steam Plant, PARADISE, KY. Tennessee Valley Authority, New Sprankles Bldg., Knoxville, Tenn. Grand total $1,690,884. Awarded May 28. CD 3/25:
Graver Water Conditioning Co., 216 W. 14th St., New York, N. Y., CA $237,254 (5 bidders) water conditioner, Paradise Steam Plant (Paradise, Ky.),
Cramer & Dunlap, Inc., 1900 W. 21st St., Tulsa, Okla., CA $922,740 steel transmission towers, Paradise Steam Plant (Paradise, Ky.).

V. L. Nicholson Co., 611 S. Central, Knoxville, Tenn., CA $507,677 Frank H. McCLUNG MUSEUM, KNOXVILLE, TENN. University of Tennessee, 810 Broadway, Knoxville, Tenn. CD 5/19 under LB.

SHORING
(Gust K. Newberg Const. Co.)

SHIPBUILDING
(Maryland Drydock Co.)

SHORING
(M. J. McGough Co.)

SHORING
(A. S. Horner Const. Co.)

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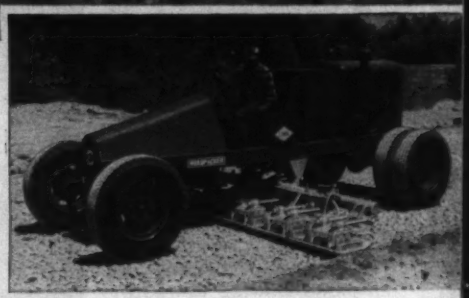

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MIDDLE WEST

HEAVY CONSTRUCTION—BA

Mich., Kalamazoo—BA 6/20—Bd. County Comrs., Courthouse, Proj. 562-2; road paving drainage G Ave. from 43 easterly to 32nd St. 2.87 mi. $125,000.

† **Ohio**—BA 6/23—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., Leetonia Channel Impvt. Project, Cherry Valley Run, Leetonia, CIVENG 36-058-60-53.

† **Michigan**—BA 6/24—U. S. Eng., P.O. Box 1027, Detroit 31, Mich., repairs to North Rewetment, St. Joseph Harbor, CIVENG 20-064-60-93. Under $500,000. Plans deposit $1. CD 6/6.

BUILDINGS—BA

▲ **O., Mansfield**—SCHOOL—BA 6/28—Bd. Educ., 75 Carpenter Rd., Junior High School, Springmill Rd., $1,500,000. Bellman, Gillett & Richards, 1600 Madison St., Toledo, archts. CD 11/9.

Ill., Downers Grove—FACTORY—Bids Asked—Da-Kay Enterprise, c/o Robert C. Taylor, archt., 212 S. Marion St., Oak Park, 1 story, 59,000 sq. ft. factory, Junior Court and Belmont Ave., $500,000.

▲† **Ill., Great Lakes**—QUARTERS CONVERSIONS, etc. —BA 6/21—Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A, quarters conversions, storage addns., Forrestal Village (Wherry Housing) Naval Training Center, Spec. 26255/60, $1,000,000. CD 8/25.

▲ **Thomas McQueen Co.**, 1313 Circle St., Forest Park, Ill., CA $2,539,782, Halsted St. interchange, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Mar. 18. CD 3/24, under LB.

BUILDINGS—LB & CA

▲ **Marvin Helf, Inc.**, 10001 Carnegie Ave., Cleveland 6, O., CA Est. $3,200,000, 8 story, 160 suite APARTMENT, Overlook Rd. and Kenilworth Lane, CLEVELAND HEIGHTS, O. Waldorf Towers, Inc., 10001 Carnegie Ave., Cleveland 6, O. CD 10/13.

▲ **Shaker Building Co.**, 20475 Farnsleigh Rd., Cleveland 22, O., CA Est. $1,000,000, 80,000 sq. ft. OFFICE, Warrensville Center Rd., SHAKER HEIGHTS, O. Golf View Investment Co., 20475 Farnsleigh Rd., Cleveland 22, O. CD 3/16.

Charles V. Maescher Co., 2106 Florence Ave., Cincinnati, O., CA $500,000, mfg. PLANT, Kemper Rd., SHARONVILLE, O. Plax Corp., Granby St., Bloomfield, Conn. Awarded June 1. CD 5/24.

Lathrop Co., 1510 Montcalm Ave., Toledo, O., CA $147,000, PLANT addn., TOLEDO, O. Owens-Illinois Glass Co., Owens-Illinois Bldg., Toledo, O.

▲ **J. P. Cullen & Son**, Janesville, Wis., LB $2,614,599, CORRECTIONAL INSTITUTION, FOX LAKE, WIS. State Dpt. P. Welfare, Madison, Wis. Bids June 2. CD 5/31.

▲ **C. H. Peterson Constr. Co.**, 4020 Minnetonka Blvd., Minneapolis, Minn., LB $1,974,000 (8 bidders), 6 story HOSPITAL ADDN., LA CROSSE, WIS. St. Francis Hospital, 709 S. 10 St., La Crosse, Wis. Bids June 2. CD 6/1.
F. M. Branson & Son, 312 Pearl St., La Crosse, Wis., LB $764,938 (5 bidders), mechanical work for hospital (La Crosse, Wis.).
Papenfuss Electric Co., 1003 S. 8 St., La Crosse, Wis., LB $459,800 (4 bidders), electrical work for hospital (La Crosse, Wis.).

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

▲ **Ark., Fayetteville**—PUBLIC HEALTH HOSPITAL—BA 6/21—Washington Co. Hospital Comm., public health hospital alters., $1,500,000. Plans deposit $100. Paul Young McIlroy Bank Bldg., archt. CD 2/12/59.

▲ **Iowa**—BA 6/23—U. S. Eng., 1709 Jackson St., Omaha, Neb., levee and channel alterations, Unit VII, Wolf Creek, Little Sioux River, Monona Co., ENG-25-066-60-108, $1,000,000. CD 9/30.

▲† **Oklahoma**—BA About 6/28—U. S. Eng., P.O. Box 61, Tulsa, Zone 2, relocating 6.9 mi. Pittsburg Co. roads, area 11, Eufaula Dam, CIVENG 34-066-132. $2,000,000.

▲ **S. D., Rapid City**—BA 7/8—City, City Council, 16 m.g. water treatment plant. Plans deposit $60. Flahart-Dittman & Francis, 626 Jackson Blvd., Rapid City, S. D., consult. engrs. CD 12/15/59.

HEAVY CONSTRUCTION—LB & CA

▲† **Hoosier Engineering Co.**, 1350 Holly, Columbus, O., LB $1,405,097, fdns., steel towers for 57 mi. Oahe-Fort Thompson 230-kv transmission line, Missouri River Basin Project, Hughes, Hyde and Buffalo Counties, Spec. DC 5275, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids May 26. CD 5/20.

▲† **Vinson Constr. Co.**, 1920 W. Grant St., Phoenix, Ariz., LB $3,826,245, est. $4,180,863, (14 bidders), Parts A and D, earthwork, concrete, steel pipe, structures for Foss Aqueduct, Clinton, Bessie and Cordell laterals, OKLAHOMA. Bureau Reclamation, Dpt. Interior, C between 18th and 19th Sts. N.W., Washington, D. C. Bids June 1. CD 5/18.

▲† **Millstone Constr., Inc.**, 8510 Eager Rd., Brentwood 17, Mo., LB $1,462,767, est. $1,236,388, (6 bidders), sewer alterations for Prairie and Ferry Sewer Sys. Proj. Items S-5 and S-6, Flood Protection, St. Louis, CIVENG-23-065-60-46, MISSOURI. U. S. Eng., 420 Locust St., St. Louis 2, Mo. Bids June 1. CD 4/27.

▲† **Building Mart Co.**, 2212 East Yandell St., El Paso, Tex., CA $1,080,523, rehabilitating 600 units Wherry housing, Holloman Air Force Base, ALAMOGORDO, N. M. Base Procurement, P.O. Box 1538, Albuquerque, N. M. Bids Mar. 15. CD 4/12, under LB.

BUILDINGS—LB & CA

▲ **John B. Herdlein Co.**, 1021 Lay Rd., Ladue 24, Mo., Owner Builds, Over $1,000,000, 198 RESIDENCES, Ries Rd. south Manchester Rd., BALLWIN, MO.

▲ **G. L. Tarlton Contg. Co.**, 5500 West Park Ave., St. Louis 10, Mo., LB $3,131,517, (7 bidders), general contract two 12 story APARTMENTS, Laclede Ave. east of Grand Blvd., ST. LOUIS, MO. St. Louis Redevelopment Corp., 411 N. 7th St., St. Louis 1, Mo. Bids May 19. CD 4/26;
Thos J. Sheehan Co., 2233 Olive St., St. Louis 3, Mo., LB $485,277, (9 bidders), heating and air-conditioning, two 22-story APARTMENTS (St. Louis, Mo.).

▲ **H. A. Lott, Inc.**, P.O. Box 25005, Houston, Tex., LB $2,048,048, two DORMITORIES, DENTON, TEX. North Texas State College, Denton, Tex. Bids June 3 CD 5/23.

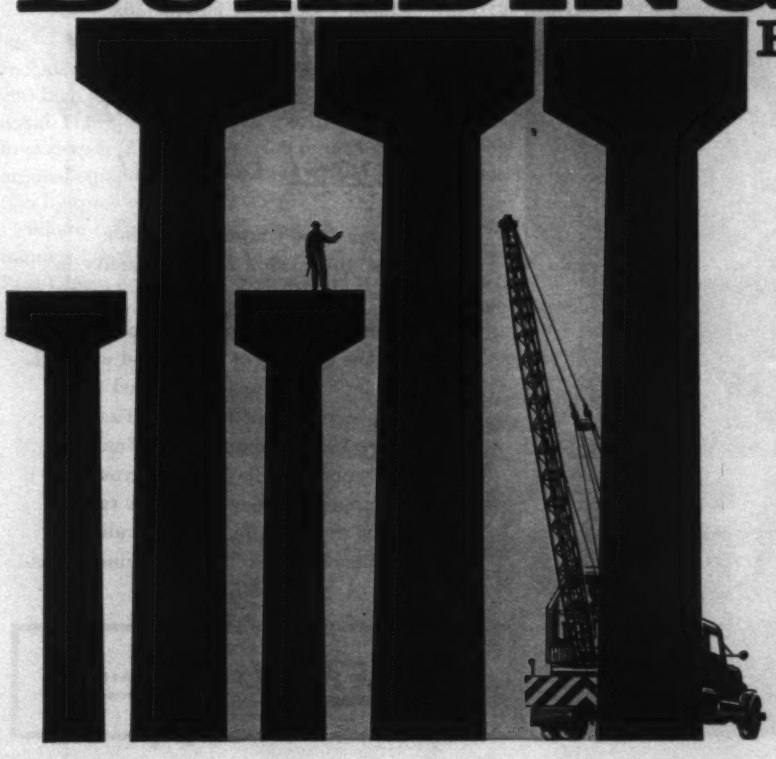
FAR WEST

HEAVY CONSTRUCTION—BA

▲† **Alaska**—REARWARD COMMUNICATIONS STATIONS —BA 6/28—U. S. Eng., 1519 S. Alaskan Way, Seattle 4, Wash., rearward communications stations, Aurora, Glennallen, Tahneta and Sawmill, Inv. 60-63. Over $1,400,000. Plans deposit $10.

Calif., San Diego—BA 6/28—City, Purchasing Agent, Rm. 161, Civic Center, Zone 1, El Cajon Blvd. Storm Drain, between Polk and Meade, 17 bid items incl. 18 to 36 in. RCP; Sanitary Sewer replacement mains, Normal Heights, 8 bid items, 6,390 lin. ft. 8 in. vitri clay pipe, etc. Plans deposit $10 each.

Calif., Sacramento — BA 6/29 — Sacramento Municipal Utility Dist., Purchasing Dpt., 1708 59th St., furnishing, delivering one 77,000 kva, FOA or 57,750-77,000 kva OA/FA three phase 60 cycle power transformer, 13.4 kv. delta to 230-kv grounded etc. Camino Powerhouse, Upper American River Proj. Inv. No. 2172. CD 1/8/58.



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† **Calif., Port Hueneme**—HARBOR REHABILITATION—BA 6/24—Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego Zone 1, rehabilitation harbor and LST dolphins, Naval Constr. Battalion Center Spec. 30298. $25,000-$100,000. CD 9/18/57.

† **Calif., Travis Air Force Base**—BLOCK TEST SHOP—BA 6/24 U. S. Eng., 180 New Montgomery St., San Francisco, concrete block test shop, ENG 04-203-60-46. CD 9/9/58.

† **Washington**—BA 6/30—U. S. Eng., City-County Airport, Walla Walla, rein-con. pumping plant 15-E addn. Kennewick levees, with 12,000 gpm pump and space for another, Kennewick, CIVENG-45-164-60-54, $75,000. Plans deposit $1.10. CD 8/23/45.

▲ **Calif., Los Angeles**—BA 7/1—Los Angeles County Flood Control Dist., 2250 Alcazar St., Bell Creek Channel from Los Angeles River to Shoupe Ave. and Calabasas Creek Channel from Los Angeles River to Van Owen St. $1,290,000. CD 7/19/57.

† **Calif., Forts Barry and Cronkhite**—BA About 7/6—U. S. Eng., 180 New Montgomery St., San Francisco, sewage treatment plant. ENG 04-203-60-54. Plans deposit $1.

† **Calif., Sacramento**—SAC MISSILE FACILITIES—BA 7/12—U. S. Eng., 1209 8th St., Sacramento, SAC missile facilities for handling Hound Dog Missiles, Mather Air Force Base. Spec. 2678. ENG 04-167-60-39. $800,000. Plans deposit $10. CD 9/19/57.

BUILDINGS—BA

▲ **Utah, Salt Lake City**—TEACHING THEATER—BA 6/21—State Bldg. Bd., State Capitol, Salt Lake City, Zone 14, 60,000 sq. ft. teaching theater, classrooms and laboratories. $1,300,000. Plans deposit $75. Harold W. Burton, 47 E. South Temple, Salt Lake City 1, Utah, archt. Howard Barker, 47 E. South Temple, Salt Lake City 1, Utah, engr. CD 5/9/58.

▲ **Calif., Hayward**—SCHOOL—BA 7/6—Hayward Union High School Dist. 305 Elmhurst St., 153,000 sq. ft., wood frame, stucco Highland High School. Plans deposit $100. Anderson, Simonds, Dusel & Campini, 2800 Park Blvd., Oakland, archts. CD 2/20/56.

HEAVY CONSTRUCTION—LB & CA

▲ **IDAHO**—State Hy. Dpt., Boise, Bids opened 5/31, **Hoops Constr. Co.**, Twin Falls, Idaho, LB $1,126,574, (6 bidders), 4-lane divided roadway, drainage structures, plant mix bit. surf., 212 ft. underpass, two 26 ft. concrete overpasses, two 30 ft. concrete bridges, four 20 ft. machine passes on 4.11 mi. Interstate 80N, Payette and Canyon Counties. CD 5/12.

▲† **Chaney & James Constr. Co.**, Box 1363, Dallas, Tex., LB $1,576,000, est. $1,500,000, (12 bidders), air traffic control bldg., SALT LAKE CITY, UTAH. Federal Aviation Agency, 5651 W. Manchester Ave., Los Angeles, Calif. Bids May 31. CD 4/12.

▲ **Chanen Constr. Co.**, 3426 N. 29 Ave., Phoenix, Ariz., LB $2,152,397, terminal, Sky Harbor Airport, PHOENIX, ARIZ., City, City Hall, Phoenix, Ariz., Bids May 13. Johannessen & Girard, c/o owner, airport consult. engrs. CD 3/14.

▲ **Tanner Constr. Co.**, 731 N. 19 Ave., Phoenix, Ariz., LB $1,148,821, Sky Harbor Airport imprvts., incl. 1,000-car parking lot, leading ramps, entrance roads and utilities, PHOENIX, ARIZ., City, City Hall, Phoenix, Ariz., Bids June 2, Johannessen & Girard, c/o owner, airport consult. engrs. CD 3/14.

▲ **Northwest Constr. Co.**, 3950 6 Ave. N.W., Seattle, Wash., LB $1,650,000, est. $1,849,000 (3 bidders), paving W. Roxbury and other streets, SEATTLE, WASH. City, County-City Bldg., Seattle 4, Wash. Bids June 1. CD 5/27.

▲ **Guy F. Atkinson**, Box 259, Long Beach, Calif., LB $1,983,670 (3 bidders), wharf reconstr., Pier A, Berths 3&f, Long Beach Middle Harbor, LONG BEACH, CALIF. Long Beach Harbor Dpt., 333 Embarcadero, Long Beach, Calif. Bids June 1. CD 5/27.

▲ **N. P. Van Valkenburg Co.**, 1627 N. Chico Ave., El Monte, Calif., CA $1,064,578, 4th Street Trunkline Unit 1, LOS ANGELES, CALIF. Los Angeles Water & Power Dpt., 316 W. 2nd St., Los Angeles, Calif. Bids May 5. CD 5/9, under LB.

▲† **Maino Constr. Co.**, 2238 South Broad St., San Luis Obispo, Calif., CA $1,639,891, est. $1,989,000, frequency control facilities and meteorology bldg. Naval Missile Facility, Spec. 27995, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids May 24. CD 5/31, under LB.

▲† **Frederickson & Watson**, 345 Court St., Ventura, Calif., CA $2,605,000, est. $2,471,000, road, utilities, Naval Missile Facility, Spec. 27993, POINT MUGU, CALIF. Dist. P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego 1, Calif. Bids May 18. CD 5/31, under LB.

Frederickson & Watson Constr. Co., 873 81st Ave., Oakland, Calif., CA $453,848, Lompoc Airport, Lompoc, SANTA BARBARA, CALIF. Santa Barbara County, Court House, Santa Barbara, Calif. Potter, Urquart, McCreary & O'Brien, 4201 Sunset Blvd., Los Angeles, Calif., engrs. Bids May 16. Awarded May 23. CD 11/23/59.

BUILDINGS—LB & CA

▲ **Burgess Constr. Co.** and Reed & Martin, Fairbanks, Alaska, LB $1,216,000, (3 bidders), 36,000 sq. ft. masonry ELEMENTARY SCHOOL, FAIRBANKS, ALASKA. School Dist., Fairbanks, Alaska. Bids May 31. CD 5/25.

▲ **Johnson-Busboom-Rauh**, N. 601 Cedar St., Spokane, Wash., CA $1,819,515, general contract, WOMEN'S RESIDENCE HALLS, PULLMAN, WASH., Washington State University, Pullman, Wash. Bids May 25. CD 5/31, under LB.
Warren, Little & Lund, W. 120 2 St., Spokane, Wash., CA $617,950, mechanical contract for women's residence halls, (Pullman, Waish.).

▲ **Ruane Corp.**, 4934 N. Walnut Grove Ave., San Gabriel, Calif., CA $1,097,150, PUBLIC WORKS YARD and facilities, Los Angeles St. and Chevy Chase Dr., GLENDALE, CALIF. City, 613 E. Broadway, Glendale, Calif. Bids May 10. Awarded May 26. CD 5/12, under LB.

▲ **Ernest W. Hahn Inc.**, 711 Greenville Ave., Hawthorne, Calif., CA est. $1,000,000, 100,000 sq. ft. ELECTRONICS RESEARCH addn., HAWTHORNE, CALIF. National Cash Register Co., Electronics Div., S. Main & K, Dayton 9, O. L. W. Davidson & Assoc., 3142 Wilshire Blvd., Los Angeles, Calif., archts.

▲† **Aloha Constr. Co. & Assoc.**, 8302 W. 3 St., Los Angeles, Calif., LB $7,771,771 Base Bid (5 bidders), 500 units CAPEHART HOUSING, 2nd Increment, Naval Auxiliary Air Station, NBy 29277, LEMOORE, CALIF. Dist. P. Wks. Office, 12th Naval Dist., San Bruno, Calif. Bids June 1. CD 5/10.

▲ **Quinn & Siegfried**, 826 N. Santa Clara St., San Jose, Calif., CA est. $3,000,000, SHOPPING CENTER, MILPITAS, CALIF. Valley Development Co., c/o Contractor.

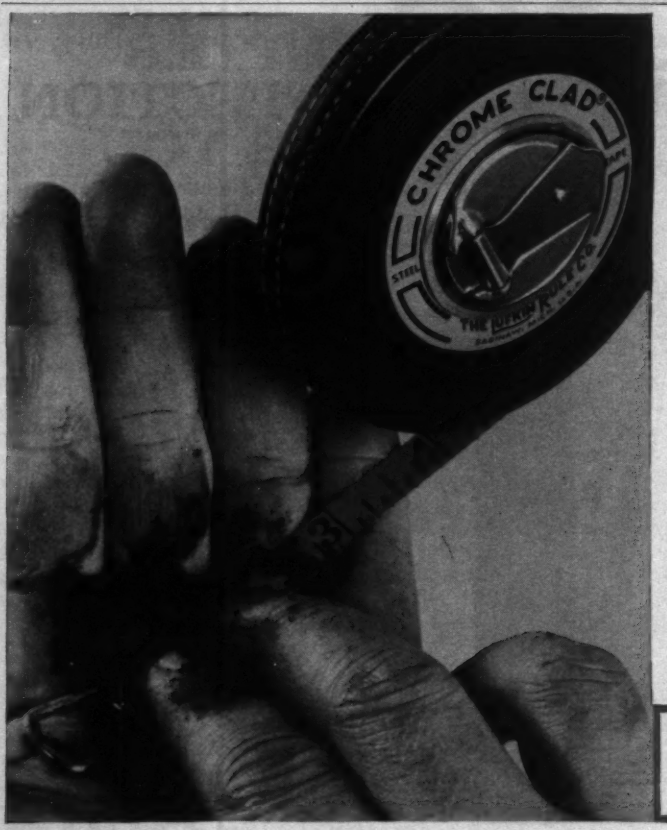
▲ **Pacific Coast Builders**, 1 South Park St., San Francisco, Calif., LB $1,804,490 (3 bidders), high SCHOOL, Old Mission Rd. and Evergreen Dr., SOUTH SAN FRANCISCO, CALIF. South San Francisco Unified School Dist., 398 B St., South San Francisco, Calif. Bids May 26. Chin & Hensolt, engrs., and Donald Francis Haines, 86 Third St., San Francisco, archt. CD 12/2/59.

▲ **Gordon H. Ball, Inc.**, 2725 Concord Ave., Concord, Calif., CA $1,506,300, 4 story COUNTY JAIL, VISALIA, CALIF. Tulare Co., County Court House, Visalia, Calif. Bids Apr. 19. CD 5/10, under LB.

CANADA

HEAVY CONSTRUCTION—BA

▲ **Ont., Toronto**—SUPERSTRUCTURE—BA 7/14—Dpt. Transport, Hunter Bldg., Ottawa, 2 story, 600 ft. diameter superstructure, Aeroquay No. 1, glass, aluminum main terminal and passenger fingers, rein.-con. parking garage, air conditioned, Malton Airport. Plans deposit $500. John B. Parkin Assocs., 1500 Don Mills Rd., Toronto, archt.-engr. CD 10/29/58.



Gritty mud would mar the markings on most tapes!

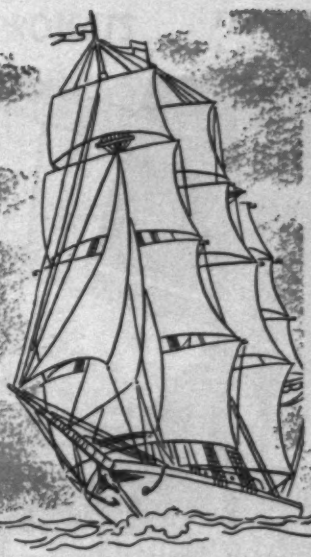
This Chrome Clad® tape is Lufkin's 50-foot ANCHOR model. It *looks* quality in its hand-sewn leather case . . . it *is* quality.

A special kind of electroplating protects the tape from the damage of mud, sand and grit. The bold black markings are bonded to the steel base . . . protected by layer after layer of electroplating . . . topped by a final coat of tough chromium. Glare free, corrosion resistant, longer lasting—this is the tape preferred by every professional. Available with markings in feet, tenths and hundredths.

THE LUFKIN RULE COMPANY
TAPES • RULES • PRECISION TOOLS

Why Rust-Oleum is different—

and how this difference helps to keep your equipment looking in top shape against rain, sun, heat, fumes, and weathering!



A Sea Captain developed it . . . Industry proved it!

The original Rust-Oleum formula was developed nearly fifty years ago by Sea Captain Robert Fergusson, who became intrigued with the rust-stopping qualities of fish oil early in his career. Creating a special treatment for the fish oil, he used the specially-processed fish oil as the vehicle in combination with fine rust-inhibiting pigments. The result? A coating that actually *stopped rust* when applied directly over sound rusted surfaces, after scraping and wirebrushing to remove rust scale and loose rust. Possible, because the *specially-processed* fish oil penetrated the rust to bare metal. This was the birth of Rust-Oleum's exclusive 769 Damp-Proof Red Primer.

RUST-OLEUM NEW COLOR HORIZONS SYSTEM AND SPEEDY-DRY COATING SYSTEM

Included in the Rust-Oleum New Color Horizons System of primer and high gloss top coats are colors to match your original equipment color! This system combines four important factors: (1) The ability to stop rust, (2) beautify as you protect with colors that match your original equipment, (3) durability to last and last, (4) ease of application by spray or brush.

Where unusually fast drying time (dry to touch in less than 30 minutes) is required for production or maintenance finishes, the Rust-Oleum Speedy-Dry System of primers and high gloss top coats will do the job. Send the coupon today, or contact your nearby Rust-Oleum Industrial Distributor.

RUST-OLEUM®

There are imitations, but only *one* Rust-Oleum. It is distinctive as your own fingerprint.

STOPS RUST!®

ATTACH TO YOUR LETTERHEAD

Rust-Oleum Corporation
2546 Oakton Street, Evanston, Illinois

Please send me the following at no cost or obligation:

- ☐ New Color Horizons Catalog—38 pages including actual color standards on colors to match original equipment finishes.
- ☐ Free test sample of Rust-Oleum 769 Damp-Proof Red Primer to apply over sound rusted surface.
- ☐ Nearest Rust-Oleum Industrial Distributor.

Compare the clean, simple lines of this structure with the heavier, haunched construction apparent in elastically designed buildings. Savings accrue through faster, easier, prefabricated construction as well as through lighter weight steels.

There's an Inland Structural Steel for every new construction idea

Plastic Design

is today more and more coming into widespread use in one and two-story rigid-frame structures. It presents welcome opportunities for reducing labor, time and material costs, for plastic design is based not upon the concept of maximum stress of a member—but upon the *load-carrying capacity of the entire structure.*

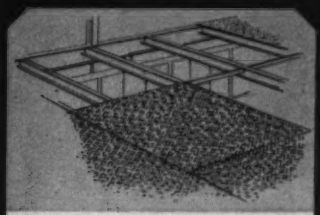
In elastic design, the entire member must be designed for the maximum moment. In plastic design, since the moment is distributed to the structure as a whole, no single member need be over-designed and substantial savings—from 5% to 35% in labor and materials—are possible. In addition, since the more indeterminate the structure the greater the saving, design time can actually be reduced by as much as 80%.

If you are contemplating the design or construction of a new building, remember that plastic design is applicable only to a ductile metal such as steel. The considerable savings possible, make it well worth your careful investigation.

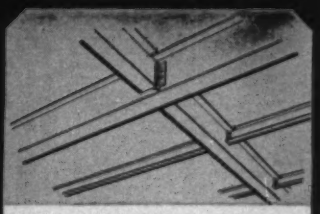
Plastic design is accepted by all four National Building Codes as well as many state and municipal codes. For complete information on this modern, cost-cutting construction method, see your local fabricator who now has structural steel available in all shapes and sizes—or call the American Institute of Steel Construction office in your area.

Use Steel *For Modern Construction*

other inland construction products

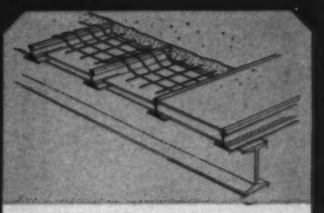


4-WAY SAFETY PLATE has come into general use as an integral, prefabricated part of the supporting structure, providing durable floors and added strength.



WIDE FLANGE BEAMS are the answer wherever more strength with less weight, longer spans with more open floor area, is the goal. Sizes from 8' to 24'.

INLAND ENAMELING IRON is ideally suited to curtain-wall and enameled panel systems, providing strength, beauty and unlimited design possibilities.



INLAND SUB-PURLINS are especially designed to provide a lighter, more efficient member for shorter-span roofs. They come cut-to-length and mill painted.

INLAND

INLAND STEEL CO.

30 West Monroe Street
Chicago 3, Illinois

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Oakland**—East Bay Municipal Utility Dist., 2130 Adeline St., 115.5 billion gal. Camanche Dam, 355,000 acres, 10 mi. below Pardee Reservoir on Mokelumne River, San Joaquin Co., $38,200,000. Bechtel Corp., 220 Bush St., San Francisco, consult. engr. CD 6/9/58.

▲ **Fla., St. Petersburg**—City, City Hall, 48-in. water transmission line from present water field about 22 mi. north of here, $7,500,000; West Side water pumping station, $2,500,000; water treatment plant imprvs. Cosme-Odessa water fields, $2,700,000; 5 deep water wells, Cosme-Odessa, water fields, $1,500,000. Greeley & Hansen, 28 St. and 66 Ave. N., St. Petersburg, consult. engrs. CD 4/16/52.

▲ **Hawaii, Honolulu**—Bd. Water Supply, Beretania and Alaphi Sts., pumping station and 2,000,000 gal. reservoir and pipelines, Wahiawa, Phase 1, $500,000; 35,000 ft. 24-in. pipeline from Farrington Hy., Barbers Point Junction to Puu-O-hulu reservoir, Mikilua, Phase 2, $800,000; 2,000,000 gal. reservoir, laying 6-mi. pipeline Waimanalo area, Part 3, Ewa-Wainae Pipeline Project, $950,000.

▲ **N. C., Wilmington**—City, City Hall, bond election Aug. 16, water imprvs. $1,000,000. CD 5/5.

▲ **Tex., Perryton** — Palo Duro River Auth., Spearman, bond election June 11, earthen dam and reservoir, Palo Duro River, $5,600,000. Freese, Nichols & Endress, 407 Danciger Bldg., Ft. Worth, consult. engrs. CD 2/10.

Wash., East Wenatchee—East Wenatchee Water Dist., water sys. extension, Proj. No. P-Wash-3074, $500,000. Constr. in 1961. Gray & Osborne, 228 S. 2 St., Yakima, consult. engrs. CD 5/23.

SEWERS, WASTE DISPOSAL

▲ **N. J., North Bergen**—Twp. of North Bergen, Municipal Bldg., incinerator, $1,500,000. Glace & Glace, 2771 Paxton St., Harrisburg, Pa., consult. engrs.

▲ **N. J., Princeton**—Princeton Twp. Committee, State Rd., pumping stations, sewer trunks, collectors, $2,500,000. Bids soon. Buck, Seifert & Jost, 112 E. 19 St., New York, N. Y., engrs.

▲ **N. Y., Buffalo**—Erie County Sewer Agency, City Hall, Buffalo, trunk sewers and pumping station to serve 9,000 acre area, Cheektowaga, and West Seneca, $2,175,000.

▲ **N. Y., North Hempstead** — Town, Town Hall, East Shore Road sewage treatment plant and sanitary sewer lines imprvs., Great Neck Manor Area, $1,400,000. CD 2/10/59.

▲ **O., Alliance**—Bd. Comrs. Stark Co., Courthouse, Canton, East Alliance sewer district, $2,070,000. Floyd G. Browne & Assocs., 125 W. Church St., Marion, consult. engrs.

▲ **O., Solon**—Village, Village Hall, sewage disposal system, $2,400,000. Willard Schade & Assocs., Chester-12th Bldg., Cleveland, Zone 14, consult. engrs. CD 11/9.

BRIDGES

▲ **Ala., Birmingham**—City, City Hall, alternate plans for either structural steel or pre-stressed concrete for 19 St. underpass under L & N Railroad tracks, $1,300,000. Bids Nov. 1960. G. A. Heft, 820 Union St., New Orleans, La., consult. engr. CD 11/21/58.

EARTHWORK, WATERWAYS

† **Michigan**—U. S. Eng., P.O. Box 1027, Detroit 31, Mich., repairs to North Revetment, St. Joseph Harbor, CIVENG-20-064-60-93. $500,000. Plans deposit $1. CD 9/23/55.

▲ **Calif., Oakland**—Alameda County Flood Control & Water Conservation Dist., Courthouse, voted $2,540,000 bonds May 24, constr. storm drain and flood control projects. CD 3/15.

AIRPORTS

▲ **Fla., Vero Beach**—RUNWAY, etc.—City, City Hall, runway, taxiway and terminal bldg., hangar, $1,457,000.

▲ **N. H., Manchester**—TERMINAL BLDG.—City, City Hall, plans by Koehler & Isaak, 1880 Elm St., terminal bldg., airport, $1,000,000. Bids in July. CD 1/8/45, under Unclassified.

▲ **Wash., Seattle** — TERMINAL EXPANSION — Port of Seattle, Bell St. Terminal, Seattle, Zone 1, bond election Nov. 8, Seattle-Tacoma Airport, 12 jet positions and 2-level operation, $4,000,000. Young, Richardson & Carleton, Central Bldg., Seattle, Zone 4, archts. G. T. Treadwell, c/o owner, ch. engr. CD 4/30/59.

LATIN AMERICA

▲ **Guatemala, Guatemala City** — REFINERY — Refineria Petroleos de Guatemala and Phillips Petroleum Co., Bartlesville, Okla., U.S.A., 12,000 b/d refinery between Puerto Barrios and Matias de Galvez. $18,000,000.

FOREIGN

▲ **Egypt, Cairo**—Municipality of Cairo, suspension 1.25 mi. bridge over Nile and Gezira Island from Central Cairo to Dokki District. $7,000,000.

UNCLASSIFIED

▲ **California**—TUNNEL—State Div. Hys., 1120 N St., Sacramento, constr. Oregon Mountain Tunnel on US 199 between north boundary of Six Rivers National Forest and 0.3 mi. north at Hazelview Summit near Oregon border, Siskiyou. $3,920,000. Bids in summer or fall.

▲ **Colo., Colorado Springs**—STADIUM—Air Force Academy Foundation, Inc., c/o J. E. Manning, 4150 S. University St., Denver, 40,000-seat stadium, Air Force Academy, $3,000,000. Skidmore, Owings & Merrill, 30 W. Monroe St., Chicago, Ill., engrs.-archts. CD 3/10/59.

PUBLIC BUILDINGS

▲ **Ark., Conway**—PLANT—City, Industrial Development Bd., City Hall, $2,200,000 bond election June 14, plant, Customade Products, subsidiary Universal Match Co., 400 Paul Ave., Ferguson 35, Mo., Lessee.

▲ **Calif., Berkeley**—LABORATORY—The Regents, University of California, Architects & Engrs., 2 Barrow Lane, plans by Wurster, Bernardi & Emmons, 202 Green St., San Francisco, bio-chemical laboratory, $2,000,000.

▲ **Calif., Yuba City**—COLLEGE—Yuba College Dist., 18 and B Sts., Yuba City, plans by Harold M. Hansen, 251 Post St., San Francisco, college, 18 St. $3,301,698. CD 11/24/59.

▲† **Md., Bethesda** — DASA BIOMEDICAL RESEARCH LABORATORY—Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., plans by Holmes & Narver, Inc., 828 S. Figueroa St., Los Angeles, Calif., DASA biomedical research laboratory, Naval Medical Center. $5,000,000. CD 12/17/59.

▲ **Va., Fairfax**—SCHOOLS—Bd. Supervs. Fairfax Co., voted $26,000,000 bonds May 31, schools. CD 5/27.

COMMERCIAL BUILDINGS

▲ **Ala., Bessemer**—SHOPPING CENTER—Bessemer Mall, Inc., 524-N 21 St., Birmingham, 250,000 sq. ft. air-conditioned shopping center, 2,000-car parking area, $3,000,000. Shepard, Winters & Hennessy Engr., Massey Bldg., Birmingham, Zone 3, consult. engrs.

▲ **Calif., San Diego**—OFFICE—Irvin J. Kahan, Larry Holzman & James Murphy, 920 Bank of America Bldg., Zone 1, plans by Palmer & Krisel, 3602 Midway Dr., San Diego 10, Calif., 24 story office, First and "C" Sts., Downtown. $6,500,000. Constr. in December or Jan. 1961.

▲ **Calif., San Mateo**—APARTMENT—Horse Ranch Inc., c/o Leo F. Lomski, 883 Santa Cruz Ave., Menlo Park, Calif., 5 story rein.-con and steel apartment, office and swimming pool between Randolph Ave. and Hillside Dr. near here. $5,000,000.

▲ **Calif., Sunnyvale**—OFFICE, etc.—Hare, Brewer and O'Kelly, c/o Tallie Maule & Hood Chatham, archts., 545 Francisco St., San Francisco, 10 story office, 5 story executive office, auditorium, 1 story professional bldg., between Mathilda and Pastoria Ave. $5,000,000.

▲ **Colo., Littleton**—HOSPITAL—Colorado Baptist General Convention, 1470 S. Holly St., Denver, plans by Kellogg & Sayre Associated Architects, 847 E. Colfax Ave., Denver, 300 bed hospital, Ridge Rd. and S. Broadway, $7,000,000.

▲ **N. Y., Bayside**—SCHOOL—Diocese of Brooklyn, 191 Joralemon St., Brooklyn, Zone 2, plans by Eggers & Higgins, 100 E. 42 St., New York, Zone 17, Bishop Edmund J. Reilly High School, Long Island Expressway and Francis Lewis Blvd., $5,000,000. CD 1/22.

▲ **N. C., Greensboro**—SHOPPING CENTER, etc.—Kirkman & Koury, Inc., 2103 Bessemer Ave., shopping center and residential area. $20,000,000.

▲ **O., Westerville**—HOMES—Huber Homes, Inc., 6749 E. Main St., Columbus, 2,400 homes development, water and sewage treatment plants, 800 acres, Rte. 161 and east of Rte. 3, south of Westerville. $15,000,000.

▲ **Tex., El Paso**—SHOPPING CENTER—Hercules Development Co., 904 Magaffin St., plans by Brockway, Weber & Brockway, West Palm Beach, Fla., shopping center, $6,750,000; earthwork, $70,000; water sys., $57,500; sanitary storm sewer lines, $115,000; hard-paved area and auto center, $190,000, 132 acre tract, Ysleta cutoff and US Int. 10.

▲ **Tex., Houston**—OFFICE, etc.—Site Oil Co., 7745 Carndlet St., St. Louis, Mo., 20 story masonry office, $5,000,000; auto parking garage, $250,000; site earthwork, $90,000, Holcombe Blvd. and Fannin St.

▲ **Va., Newport News**—HOUSES—Town & Country Realty Co., 10 Stoneybrook Lane, 100-house subdivision. $2,000,000.

▲ **Wash., Tacoma**—SHOPPING CENTER—Tacoma Freeway Mart, Inc., c/o L. Romano, 2027 29 Ave. S., Seattle, plans by J. Graham & Co., 1426 5 Ave., Seattle, Zone 1, six, 400,000 sq. ft. for shopping center at Tacoma Freeway and S. 43 St., $4,000,000. CD 4/7/59.

Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—BA

MASSACHUSETTS—BA 6/21—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Holden—Chapter 90, hy. reconstr. Rte. 122, $1,777.

Melrose—Chapter 90, hy. reconstr. Section West Wyoming Ave. and Main St. $43,333.

Revere—Chapter 90, hy. reconstr. Section of Mills Ave. $40,000. Plans deposit $5 each.

Mass., Bedford—FIELD LIGHTING VAULT—BA 6/21—Commonwealth of Mass. Port Auth., 141 Milk St., Boston, MPA 1.016 field lighting vault, L. G. Hanscom Air Field. $240,000. Plans deposit $15.

Mass., Bedford—AIRFIELD IMPRVTS.—BA 6/22—Commonwealth of Mass. Port Auth., 141 Milk St., Boston, MPA 1.015, airfield imprvts. L. G. Hanscom Air Field. $500,000. Plans deposit $25.

† **Me., Bucks Harbor**—FD RADAR FACILITIES—BA 6/23—U. S. Eng., 424 Trapelo Rd., Waltham, Mass., F.D. radar facilities FPS 24/24-Bucks Harbor Air Force Station, ENG-19-016-60-81. $600,000-$800,000. Plans deposit $10. Stressinger & Adams, Maguire & Reidy, 101 Tremont St., Boston, Mass., engrs. CD 5/20, under LB.

† **New Hampshire**—BA On Or About 6/28—U. S. Eng., 562 Congress St., Portland, Me., repairs to flood control dike, on right bank of East Branch of Pemigewasset River, Lincoln, CIVENG-19-016-60-61.

▲ **MASSACHUSETTS** — BA 6/28 — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Andover-Tewksbury—highway 495-73. $1,233,300. CD 5/19.

Hatfield-Northampton—highway work, Rte. 26. $1,533,300. Plans deposit $25 each.

▲ **MASSACHUSETTS** — BA 6/28 — Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Lowell—Section Lowell Connector, U-358(7). $4,177,777. Plans deposit $50. CD 6/26/57.

Mass., Grafton—FIRE PROTECTION—BA 7/1—Commonwealth of Mass., Dpt. Mental Health, Div. Bldg. Constr., 38 Chauncy St., Boston, Proj. M-711 Contr. 11, fire protection, State Hospital. $150,000. Plans deposit $20. John Guarino, 2 Lexington St., East Boston, Mass., archt. CD 3/8.

BUILDINGS—BA

▲ **N. H., Laconia**—SCHOOL—BA 6/17—City, Laconia, 26 Academy St., junior high school, Opechee Park, $1,000,000. Plans deposit $100. Alfred T. Granger, Assoc., Granger Circle, Hanover, archts. CD 3/3.

† **Mass., Boston**—HEALTH SERVICE HOSPITAL IMPRVS.—BA 6/17—General Services Admin., Post Office & Courthouse, Boston, U. S. Public Health Service Hospital alterations.

▲ **Mass., Clinton** — SCHOOL — BA 6/29 — Town, High School Bldg. Comn., Chestnut St., senior-junior high school, Church St. $1,500,000. Plans deposit $100. William W. Drummey Assoc., 80 Boylston St., Boston, Mass., archts. CD 9/23/59.

▲† **Me., Bangor**—HOUSING—BA 7/1—Base Procurement Office, Dow Air Force Base, Bangor, 480 units Capehart Housing, Dow Air Force Base, IFB 17-601-60-37. $6,500,000. Higgins, Webster, Pedersen & Tileny, 6 State St., Bangor, Me., archts. CD 3/19/59.

Conn., Middletown—CHAPEL—BA 7/6—State P. Wks. Comrs., 165 Capitol Ave., Hartford, Proj. Bl I 162, chapel, Connecticut State Hospital. Plans deposit $15. Walter Furey, 308 Enfield St., Thompsonville, archt. CD 9/6/58.

Mass., Manchester—SCHOOL—BA 7/14—Town, Lincoln St., junior-senior high school, Lincoln St. $600,000. Plans deposit $50. Stoner Assoc., 118 Newbury St., Boston, Mass., archts. CD 4/9/59.

Me., Portland—WAREHOUSE and OFFICE—Bids Asked—Nelson & Small, Inc., 68 Union St., warehouse and office. $200,000. Lindsay Lord, 11 Ameroscoggin Rd., Falmouth, Foreside, Portland, Me., archt. CD 5/16.

HEAVY CONSTRUCTION—LB & CA

▲† **Edsel Corp. NYK-Hamilton Shields, Bennington, Vt, and R. W. McGuire Constr. Co.,** Palmer, Mass., LB $1,863,000 Armed Services Housing Proj. 114 HOUSING UNITS, Loring Air Force Base. Inv 17-600-60-43, LIMESTONE ME. Base Procurement Office, Bldg. T, 7230, Loring Air Force Base, Limestone, Me. Bids June 7 CD 5/17.

▲ **Walsh Bros.,** 150 Hampshire St., Cambridge, Mass., LB $1,546,000 MEDICAL RESEARCH FACILITIES, BOSTON, MASS. Retina Foundation, 30 Chambers St., Boston, Mass. Bids June 7 CD 5/16.

Westcott Constr. Corp., 52 N. Washington St., North Attleboro, Mass., CA $632,400, est. $650,000, sewerage and sewage disposal Plant, NASHUA, N. H., City, Bd. P. Wks., 229 Main St., Nashua, N. H. Awarded May 31. CD 5/19, under LB.

▲ **J. Slotnik Co.,** 99 Chauncy St., Boston, Mass., LB $2,075,000 HOSPITAL addn., alterations, Washington St., NORWOOD, MASS. Norwood Hospital Bd. Trustees, 729 Washington St., Norwood, Mass. Bids June 8. CD 5/26.

▲ **Edwin Moss & Son, Inc.,** 555 Grant St., Bridgeport, Conn., LB $1,000,000 (4 bidders) 2 story, 42,000 sq. ft. brick, stone OFFICE, air conditioning, West St., DANBURY, CONN. Southern New England Telephone Co., 227 Church St., New Haven, Conn. Bids May 27. CD 5/18.

▲ **Plaza Terrace Inc.,** 339 Kimberly Ave., New Haven, Conn., Owner builds, $1,200,000, four 2 story, 100 unit APARTMENTS, Plaza Terrace Apartments, HAMDEN, CONN. Ryder Struppmann & Neumann, 90-04 161st St., Jamaica, N. Y., archts.

▲ **Fabrizio & Martin Inc.,** 1082 Post Rd., Darien, Conn. LB $2,294,200 (9 bidders) JUNIOR HIGH SCHOOL, EAST HARTFORD, CONN. Town, School Bldg. Committee, 740 Main St., East Hartford, Conn. Bids June 2. CD 5/13.

BUILDINGS—LB & CA

Westcott Constr. Corp., 52 North Washington St., North Attleboro, Mass., LB $817,250, est. $850,000, JUNIOR HIGH SCHOOL off Amvet Ave., NORTH ATTLEBORO, MASS. Town, 45 S. Washington St., North Attleboro, Mass. Bids June 2. CD 5/11.

▲ **E. & F. Constr. Co.,** 94 Wells St., Bridgeport, Conn., CA $3,420,000, MOTHER HOUSE, NOVITIATE, Belden Hill, WILTON, CONN. School Sisters of Notre Dame, c/o J. Gerald Phelan, archt., 211 State St., Bridgeport, Conn., Bids May 26. CD 6/6, under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

N. Y., Flushing—PLAYGROUND, etc.—BA 6/16—Comr, Parks, Arsenal Bldg., Central Park, 64th St. and 5th Ave., New York, Zone 21, playground and baseball diamond south of Colden St. and east of Elder Ave., Kissena Corridor Park, Queens Boro, Contr. Q-300-257. Plans deposit $10. CD 9/28/57.

† **N. Y., Syracuse**—REPAIR OF BASE SUPPLY WAREHOUSE DOCK—BA 6/16—Assistant to U. S. Property & Fiscal Officer, N. Y. for Air (Property) AFB 6324, NYANG, Hancock Field, Syracuse, Zone 11, repair of base supply warehouse dock, New York Air National Guard Facilities, Hancock Field, Inv. No. AF 525512-60-136-DG. CD 2/29/56.

N. Y., New York—BA 6/17—President Manhattan Boro, Rm. 2034, Municipal Bldg., New York, Zone 7, Contr. 616, recurbing Lexington Ave. from E. 125th St. to E. 131 St., Sutton Pl. south (west side) E. 55th St. to E. 56th St.; W. 16th St. from 9th Ave. to 10th Ave. (roadway wid'n.); W. 19th St. from 10th Ave. to 11th Ave. (roadway wid'n.) W. 46th St. from 11th Ave. to 12th Ave. (roadway wid'n.). Manhattan Boro. CD 8/26/44.

† **N. Y., Syracuse**—AIRCRAFT PARKING RAMP IMPRVTS.—BA 6/17—Assistant to U. S. Property & Fiscal Officer, N. Y. for Air (Property) AFB 6324, NYANG, Hancock Field, Syracuse, Zone 11, repairing and resurf. aircraft parking ramp, National Guard Facilities, National Guard Airbase, Hancock Field, Inv. AF 525512-60-138. CD 2/29/56.

† **D. C., Wash.**—PARK IMPROVEMENTS—BA 6/21—National Park Service, Dpt. Interior, C St. between 18th and 19th Sts. N.W. Anacostia Dr. and parking areas, Anacostia Park. CD 8/16/58.

N. J., Elizabeth—WHARF CONSTR.—BA 6/21—At office of Chief Engineer, Port of New York Auth., Room 1100, 111 Eighth Ave., New York 11, N. Y., wharf constr., incl. piers, Berths 52, 54, 56 and 58. Contr. EP-110.003. Plans deposit $30. Extended date. CD 5/16.

† **Md., Patuxent River**—BA 6/22—Area P. Wks. Office, Chesapeake, U. S. Naval Weapons Plant, Wash., D. C., resurf. station road, U. S. Naval Station. NBy-30785, $25,000-$100,000. CD 9/17/57.

Del., Wilmington—DOCK EXTENSION—BA 6/27—Office, Clerk of City Council, Public Bldg., 10th and King Sts., 1,000 ft. dock extension, Marine Terminal. Plans deposit $25. CD 3/1.

† **Pa., Middletown**—WATER DISTRIBUTION SYSTEM—BA 6/28—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Md., water distribution sys., Olmsted Air Force Base, ENG-18-020-60-26, $100,000-$500,000. Gannett Fleming Corddry & Carpenter, 600 N. Second St., Harrisburg, archts.-engrs. CD 9/28.

▲ **Pa., Midland**—BA 7/7—Borough of Midland, Beaver Co. office of Secy., Municipal Bldg., sewage treatment plant; Contr. 1, general constr., Contr. 2, plumbing, Contr. 3, heating work, Contr. 4, electrical work. Plans deposit $50. The Chester Engineers, 601 Suismon St., North Side, Pittsburgh, Zone 12, engrs.

BUILDINGS—BA

Md., Baltimore—TERMINAL, etc.—BA 6/20—Safeway Trailways Inc., 1200 I St. N. W., Wash., D. C., 6 story 145x156 ft., steel, concrete block, concrete bus terminal and offices, 210 W. Fayette St. $500,000. MacLane & Chewning, 1812 M St. N. W., Wash., D. C., archts. Silver & Assoc., 2088 Hillard Pl. N. W., Wash., D. C., engrs. CD 1/7.

▲ **N. Y., North Tarrytown**—HOUSING—BA 6/20—North Tarrytown Housing Auth., 28 Beekman Ave., 9 story 85 unit X-shaped apartment. $1,130,000. R. Stanley Krinsky & Assoc., 20 So. Broadway, Yonkers, N. Y., archts. Jaros, Baum & Bolles, 730 3rd Ave., New York 17, N. Y., engrs.

▲ **Del., Newark**—DISTRIBUTION CENTER etc.—BA 6/22—Avon Products, Inc., 240 Schapl St., distribution center and offices, $2,000,000. Plans deposit $50. Whiteside, Moeckel & Carbonell, 9th & Market Sts., Wilmington, Zone 99, archt. L. H. Doane Assocs., Inc., Pennsylvania R.R. Bldg., Wilmington, structural engr. Eggly-Fulow, 100 S. French St., Wilmington, mechanical engr.

Md., Towson—POLICE BUREAU HEADQUARTERS—BA 6/23—Baltimore County Executive, County Office Bldg., Zone 4, 1 story, bsmnt. 121x161 ft concrete, steel, precast concrete police bureau headquarters. $750,000. Plans deposit $20. Paul J. Grubb, c/o owner, archt.

Md., Baltimore—DEPARTMENT STORE—BA 6/29—The Hecht Co. of Baltimore, Howard & Lexington Sts., Zone 1, (selected list bidders) 2 and 3 story, masonry air-conditioned department store Reisterstown Plaza Shopping Center, Reisterstown Rd. Abbott, Merkt & Co., 630 Third Ave., New York 17, N. Y., archts.

† **N. J., Dover**—SUPPORT FACILITIES—BA 6/30—U. S. Eng., 111 E. 16 St., New York 3, N. Y., support facilities for Special Weapons Pilot Plant, Cafeteria Bldg., Picatinny Arsenal, ENG-30-075-60-101 $150,000. Plans deposit $10.

N. Y., Vestal—DORMITORY—BA 7/7—Dpt. P. Wks., State Office Bldg., Albany, dormitory, Harpur College. $650,000. CD 4/4.

▲ **B. Turecamo Contrg. Co., Inc.,** 1752 Shore Parkway, Brooklyn 14, N. Y., LB $666,854, (1) curbing, constr. sidewalks, b. conc. E. 108 St. to Avenue M; (2) curbing and b. conc. paving Haring St. to Brown St.; (4) b. conc. paving roadway of Liberty Ave. to Forbell St.; (5) b. conc. paving roadway Lefferts Ave. from Albany Ave. to Brooklyn Ave.; (6) b. conc. paving roadways Montgomery St. to Brooklyn Ave.; (7) b. conc. paving roadways of 78th St. from 19th Ave. to 6th Ave.; (9) resurf. with asphalt 11th Ave. from 55th St. to 18th Ave. to 12th Ave., Brooklyn Boro, BROOKLYN, N. Y. President Brooklyn Boro, Boro Hall, Rm. 21, Brooklyn 1, N. Y. Bids June 7. CD 6/1.

MacAsphalt Constr. Corp., 33-15 Lawrence St., Flushing, N. Y., LB $396,588 (6 bidders), (3) regrading, curbing, recurbing, etc. Oakland St. from Greenpoint Ave. to Bayard St. (Brooklyn, N. Y.).

▲ **Rand Constr. Co., Inc.,** 384 Park Ave. S., New York 10, N. Y. LB $1,334,500 (8 bidders) Pier 7, bldg. finishes, Brooklyn-Port Authority Piers. Contr. BP 180.002, BROOKLYN, N. Y. Port of New York Auth., 111 Eighth Ave., New York 11, N. Y. Bids June 7. CD 5/6.

▲ **Tully & DiNapoli, Inc.,** 127-50 Northern Blvd., Corona, N. Y., LB $1,054,234 (4 bidders) overpasses, parking field, drainage facilities, Aqueduct Racetrack, OZONE PARK, N. Y. Greater New York Assoc. Inc., 300 Park Ave., New York, N. Y. Andrews & Clark, 305 E. 63rd St., New York, N. Y., engrs.

▲ **D. W. Winkelman Co., Inc.,** 205 Harrison St., Syracuse, N. Y., CA $529,766 runway overruns and approach lighting (FY 1960 Program) Plattsburgh Air Force Base ENG 30-075-60-66, PLATTSBURGH, N. Y. U. S. Eng., 111 East 16th St., New York 3, N. Y. CD 9/28/59.

A. A. Salerno, 41 Relyea Place, New Rochelle, N. Y., CA $696,830, bldgs. and facilities, ENG-36-199-60-25, GIBBSBORO, N. J., U. S. Eng., 2635 Abbottsford Rd., Phila., Pa., Bids May 19. Awarded May 31. CD 5/26 under LB.

Wright Contracting Co., 5712 Erdman Ave., Baltimore, Md., CA $682,581. (6 bidders) Contr. 2084-W, Potomac River Water Supply Development, water mains from Redland Rd. to Norbeck, HYATTSVILLE, MD. Washington Suburban Sanitary Comn., Hamilton St., Hyattsville, Md. Bids June 1 CD 5/25.

▲ **De Felice & Son, Inc.,** Nettleton Ave., New Haven, Conn., LB $1,700,000 (19 bidders), repairs to runway 13-31, U. S. Naval Air Station, NBy 21545, PATUXENT RIVER, MD. Area P. Wks., Chesapeake, U. S. Naval Weapons Plant, Wash., D. C. Bids June 8. CD 6/1.

Washington Contractors, Inc., 9th & Brentwood Rd. N.E., Wash., D. C., LB $99,685 (5 bidders), with b. conc. surf. roadways (2nd Spring Cover Contract, 1960), WASH., D. C. Bids June 3. CD 10/8.

▲ **Blackwell Engineering Co.,** Box 358, Merryfield, Va., LB $3,045,129, K St. Expressway, 20th to 25th Sts. N.W., WASH, D. C. D. C. Govt., Dpt. Hys., 499 Pa. Ave. N.W., Wash., D. C. Bids June 8. CD 5/16.

Nance & Vivadelli, Arlington Trust Bldg., Arlington, Va., LB $227,408, (8 bidders) watermains, storm, sanitary sewers, 6th St. SW between F St. and Maryland Ave. WASH., D. C. District of Columbia Govt., Sanitary Engineering Dpt., 499 Pa. Ave. NW, Wash., D. C. Bids May 31. CD 5/17.

▲ **J. R. Stevenson Corp.,** 347 Madison Ave., New York, N. Y., LB $2,465,000 (12 bidders) general contract Walter S. Boardman SCHOOL, OCEANSIDE, N. Y. Bd. Educ. Unif. School Dist. No. 11, Town of Hempstead, Oceanside, N. Y. Bids June 8. CD 5/24.

▲ **Perini Corp.,** 73 Montwait Ave., Framingham, Mass., CA $4,569,000, general contract 6 story structure City Public SAFETY BLDG., Civic Center site, ROCHESTER, N. Y. Rochester-Monroe Civic Center Comn., Rm. 36, City Hall, Rochester, N. Y. Bids May 24. CD 5/27, under LB.

Joseph Davis Inc., 120 W. Tupper St., Buffalo, N. Y., CA $797,271 heating, ventilating and air conditioning 6 story City Public Safety Bldg. (Rochester, N. Y.).

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These new tanks have unobstructed interiors to carry maximum cargo with least danger of contamination—the essential requirements of an order for two independent tank barges from Union Carbide Chemicals Company. One barge is designed to carry Grade A and lower liquids having a Reid Vapor Pressure not exceeding 25 psi. The other barge will carry similar cargoes having a Reid Vapor Pressure not exceeding 40 psi.

American Bridge designed and constructed the tanks and barges at its modern Plate Shop in Orange, Texas. The results: two Jumbo Hopper Barges 195′ x 35′ containing six tanks 52′ long x 14′-6″ O.D. and weighing 22 tons with a total capacity of 383,000 gals. per barge. The reinforcing members for the tanks were placed on the tank exteriors leaving unobstructed nickel-plated interiors.

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American Bridge Division of United States Steel

BUILDINGS—LB & CA

▲ **United Housing Foundation, Inc.,** 500 5th Ave., New York 36, N. Y., Owner Builds, Approx. $33,500,000, Warbasse Houses; six-24 story, 2,484 APARTMENTS, Shore Parkway, West Ave., Ocean Parkway, Neptune Ave. and W. 6th St., 31 acres, BROOKLYN, N. Y. Herman Jessor, 92 Liberty St., New York 6, N. Y., archt. CD 7/18/57.

▲ **Fred C. Trump,** 89-31 161 St., Queens 2, N. Y., Owner Builds, Approx. $56,000,000, eight 20 story, 3,800 APARTMENTS, Neptune Ave., Ocean Parkway, Sea Breeze Ave., West Fifth St., BMT Brighton Line, IND Culver Line, Sheepshead Bay Rd., West 8th St., Shell Rd. and West Sixth St., BROOKLYN, N. Y. Lapidus, Kornblath, Harle & Leibman, 139 E. 56th St., New York 22, N. Y., archts. Farkas & Barron, 5 Beekman St., New York 38, N. Y., engr. CD 7/18/57 under United Housing Foundation Inc. as owner.

▲ **Websco Constr. Co.,** 104 So. Central Ave., Valley Stream, N. Y., LB $1,074,000, Proposal 1, LB $1,058,000, Proposal 2, (11 bidders) general contract, Spec. 15178-C, ANNEX to State Training School for Boys, Bldg. No. 1, GOSHEN, N. Y. State Dpt. P. Wks., State Office Bldg., Albany, N. Y. Bids June 2.

▲ **Alvord & Swift,** Grand Central Terminal, New York 17, N. Y., CA $4,500,000, alterations and air-conditioning to OFFICE at site, NEW YORK, N. Y. New York Telephone Co., 140 West St., New York 7, N. Y. Voorhees, Walker, Smith, Smith & Haines, 101 Park Ave., New York 17, N. Y. CD 11/24/59.

▲ **Thompson-Starrett Co. Inc.,** 254 W. 54th St., New York 19, N. Y., CA $1,000,000, 2 story HEADQUARTERS, TARRYTOWN, N. Y. General Precision Equipment Corp., 92 Gold St., New York, N. Y. Finne, Lyman, Finne, 1155 Magnolia St., Elizabeth, N. J., archts. Bids May 12. CD 3/22.

▲ **Marcello Mezzullo Inc.,** 132 Pearl St., Port Chester, N. Y., LB est. $2,000,000 (4 bidders) 1,200 room INN, 10 acre tract at Broadway and New York State Thruway Exit No. 9, TARRYTOWN, N. Y. Hilton Hotels Corp., 401 7th Ave., New York 1, N. Y. Bids May 24 CD 5/4.

▲ **Richard Wilson Constr. Co.,** 100 Huguenot Ave., Englewood, N. J., Owner Builds, $1,000,000, GARDEN APARTMENTS, Leland Ave., NORTH PLAINFIELD, N. J., Leonard G. Feinen Asso., 320 Lincoln Ave., Hasbrouck Heights, N. J., archts.

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa., CA $3,073,000, UNDERGRADUATE LIBRARY, seminar and classroom bldg. for University of Pa., PHILA., PA., General State Auth., 18 and Herr Sts., Harrisburg, Pa., Bids May 11. Total CA $4,510,027. CD 5/16 under LB.

▲ **Consolidated Engineering Co., Inc.,** 20 E. Franklin St., Baltimore, Md., CA est. $12,000,000 general contract 830,000 sq. ft. ASSEMBLY PLANT (two addns. north and west), incl. DRIVEWAY BLDG., Chevrolet Plant, Broening Highway, BALTIMORE, MD. General Motors Corp., 3044 W. Grand Blvd., Detroit, Mich. Bids Apr. 7 CD 4/6.

▲ **Robert E. Lamb, Inc.,** 3429 W. Indiana Ave., Phila., Pa., CA est. $1,250,000, 170,000 sq. ft masonry and steel PAINT MIX and STORAGE BLDG. addns. to Main Plant, Fisher Body Div., BALTIMORE, MD. General Motors Corp., 30001 Van Dyke, Warren, Mich. Albert Kahn Assoc., Architects & Engineers Inc., New Center Bldg., Detroit, Mich., archts.-engrs. CD 7/17/59.

▲ **Frank F. Favazza & Son, Inc.,** 2529 St. Paul St., Baltimore 18, Md., CA $1,375,000 brick, concrete and block air-conditioned 100 unit MOTEL, restaurant, swimming pool, 3600 Pulaski Hy. and 108 unit MOTEL, etc. west of here, BALTIMORE, MD. Holiday Inn Motels of Maryland, c/o Mark M. Mayers, 14 E. Center St., Baltimore 2, Md. CD 5/27.

SOUTH

HEAVY CONSTRUCTION—BA

Tenn., McMinnville—BA 6/16—City, City Hall, 110,000 lin. ft. 8 in. and larger sanitary sewer lines. Over $300,000. Plans deposit $50. Campbell & Wallace, P. O. Box 10156, Knoxville, Tenn., engrs. CD 7/15/59.

† **Va., Northwest**—GRADING—BA 6/21—Dist. P. Wks. Office, Fifth Naval Dist., Room 307, Bldg. N-26, U. S. Naval Base, Norfolk, grading, Naval Radio Station (R), Contr. NBy-30640, Spec. No. 30640/60. Under $10,000.

† **VIRGINIA**—BA 6/23—Bureau P. Roads, 920 S. Jefferson St., Roanoke,

Hampton—access road, reconstr. Mill Creek Bridge on Va. St. Rte. 143, City of Hampton to Fort Monroe and 25 span, 567 ft. prestressed concrete slab superstructure carrying 22 ft. roadway on prestressed concrete piles, Proj. W-AD-19 (1).

† **N. C., Cherry Point**—INDOOR SWITCHGEAR—BA 6/23—Dist. P. Wks. Office, 5th Naval Dist., Naval Base, Norfolk, Va., replacing indoor switchgear, Bldg. 90, Marine Corps Air Station, Contr. NBy 30648, Spec. 30648/60. $25,000-$100,000.

† **Ga., Brunswick**—TRAINING—BA 6/23—Dist. P. Wks. Office, 6th Naval Dist., Bldg. 13, US Naval Base, Charleston, S. C., Training Bldg. alterations, US Naval Air Station, Glynco, NBy 33195, Spec. 33195/60, $25,000-$100,000.

▲† **Va., Williamsburg**—HOUSING UNITS—BA 6/28—Dist. P. Wks. Office, Fifth Naval Dist., Room 307, Bldg. N-26, U.S. Naval Base, housing units, Armed Forces Experimental Training Activity, Contr. NBy-30616, Spec. No. 30616/60. Over $1,000,000.

† **Va., Williamsburg**—WW AND ROAD REPAIRS—BA 6/28—Dist. P. Wks. Office, Fifth Naval Dist., Room 307, Bldg. N-26, U.S. Naval Base, Norfolk, water line repairs, Armed Forces Experimental Training Activity, Camp Peary, Contr. NBy-30615, Spec. No. 30615/60; road sys. repairs and addns., Contr. NBy-30632, Spec. No. 30632/60. $25,000-$100,000 each.

† **Fla., Cocoa**—ROAD, etc.—BA about 6/28—U. S. Eng., P.O. Box 4970, Jacksonville, Zone 1, road around impact pit erosion control, Pad 25B, addl., Theodolite Pads, Cape Canaveral Missile Test Annex, Air Force Missile Test Center, Patrick Air Force Base, ENG-08-123-60-80, $25,000. CD 6/4/59.

† **Louisiana**—BA 7/6—U.S. Eng., foot of Prytania St., New Orleans, Item M-303.3-R, Lum Light-Old Lake Bed Levee right descending bank Mississippi River, Concordia Parish. CIVENG-16-047-60-220. $100,000. Plans deposit $1. CD 9/23/58.

▲ **Virginia**—TUNNEL APPROACH HIGHWAY, etc.—BA about 12/1—Elizabeth River Tunnel Comn., High St., Portsmouth, approach hy. from tunnel terminus at Pinners Point to High St., 2nd Norfolk-Portsmouth Tunnel, Contr. No. 4; ventilating bldgs., access road, landscaping, etc., Contr. No. 2. Parsons, Brinckerhoff, Quade & Douglas, 165 Broadway, New York, Zone 6, N. Y., engrs. CD 11/25

BUILDINGS—BA

▲ **Ga., Canton**—HOSPITAL—BA 6/28—Cherokee County Hospital Auth., Courthouse, hospital, $1,300,000. Plans deposit $50. Stevens & Wilkinson, 157 Luckie St. NW Atlanta, archts. CD 11/19.

▲ **Ga., Atlanta**—MOTEL—BA 6/30—Julius Epstein, 231 S. LaSalle St., Chicago, Ill., Atlanta Tower Motel. $1,500,000. Extended date. A. Epstein & Son, Inc., 2011 W. Pershing Rd., Chicago, Ill., archt. CD 6/3.

▲ **Va., Roanoke**—HIGH SCHOOL—BA 7/13—City School Bd., William Fleming High School, $2,000,000. Hayes, Seay, Mattern & Mattern, 1615 Franklin Rd. S.W., archts. CD 3/11.

▲ **Fla., Jacksonville**—AUDITORIUM—BA 7/19—City, City Hall, municipal auditorium, $4,500,000. Kemp, Bunch & Jackson, 33 W. Hogan St., archts. CD 4/12

La., Thibodaux—SCIENCE—BA 8/7—State Bd. Educ., 16th Fl., State Capitol, Baton Rouge, science bldg., F. T. Nichols State College. $825,000. Plans deposit $50. Barron, Heinberg & Brocato, 1015 Wisteria, Alexandria, La., archts. CD 6/6.

▲ **Fla., Hallandale**—APARTMENT—Bids Asked—Taromina Development Corp., 648 Oleander Dr., 4 story, 80,000 sq. ft. apartment, $1,200,000. John E. May, 410 E. Beach Blvd., archt.

HEAVY CONSTRUCTION—LB & CA

▲ **SOUTH CAROLINA**—State Hy. Dpt., Hotel Jefferson, Columbia,

McMeekin Constr. Co., P. O. Box 352, Cheraw, S. C., CA $1,048,752 bridge work. S. C. Dockets Nos. 2134.275 & 2134.275.1-FAP No. F-2514(6), Florence and Marion Counties. Bids May 17 CD 5/9.

Sumter Electric Memebership Corp., Americus, Ga., Own forces $100,000, electric distribution lines Sumter Co., GEORGIA. CD 12/13/56.

▲† **Central of Georgia Railway Co.,** 301 W. Broad St., Savannah, Ga., and **South Western Railroad Co.,** Macon, Ga., $3,035,385, relocation, rearrangement for alteration of railway facilities at Walter F. George Lock & Dam, CIVENG-60-540, ALABAMA-GEORGIA, U. S. Eng., 2301 Grant St., Mobile, Ala. CD 8/17/55.

▲ **Brinson-Allen Constr. Co.,** 5013 E. Broadway Ave., Tampa, Fla., LB $1,094,327, est. $1,250,000, 4-lane Memorial Hy. Spruce Sts. Tampa (Hillsborough City Participates) TAMPA, FLA. City, City Hall, Tampa, Fla.

† **Hewitt Contr. Co.,** 1509 3 Ave., Columbus, Ga., LB $752,351, relocating portions of US 431, Walter George Dam, Chattahoochee River, Barbour Co., CIVENG-01-076-60-55B, ALABAMA. U. S. Eng., P.O. Box 1169, Mobile, Ala. Bids May 26. CD 4/27.

Catalytic Constr. Co., 1528 Walnut St., Phila., Pa., CA $400,000, waste disposal plant, ANNISTON, ALA. Monsanto Chemical Co., W. Anniston, Anniston, Ala.

† **Liles, McElvey, Ruthland Constr. Co.,** 2828 W. Edgemont Ave., Montgomery, Ala., and **Harrelson Corp.,** 2104 4 Ave., Phoenix City, Ariz., CA $565,555, 225-unit Wherry housing rehabilitation, Craig Air Force Base, SELMA, ALA. Procurement Office, Craig Air Force Base, Selma, Ala. CD 11/17/58.

† **MISSISSIPPI**—Bureau P. Rds., Dpt. Commerce, First Natl. Bank Bldg., Florence, Ala.

J. C. McBeath, 1000 Mississippi St., Jackson, Miss., LB $533,809 (8 bidders) grading, draining, grav. surf. Kelso-Holly Bluff Rd., Mississippi Forest Hy., Proj 34-A1, Bids June 2. CD 5/9.

M & L Constr. Co., Box 95, Kaplan, La., LB $563,500, (10 bidders), East Sewage Treatment Plant and Northeast Interceptor, LAFAYETTE, LA. City, City Hall, Lafayette, La. Bids May 31. CD 5/11.

BUILDINGS—LB & CA

Specialties, Inc., Charlottesville — Albemarle Airport, Charlottesville, Va., Owner Builds, $150,000, COMPUTERS PLANT, CHARLOTTESVILLE, VA. CD 11/30.

Silas S. Kea & Son, Ivor, Va., CA $510,000, HOSPITAL, EMPORIA, VA. Greensville Memorial Hospital, Emporia, Va. CD 6/2, under LB.

▲ **Thorington Constr. Co.,** New Market, Va., LB $1,239,400, (5 bidders), high SCHOOL between Shenandoah and Stanley, CD 4/5; and school, LURAY, VA., Page Co. School Bd., Luray, Va., CD 11/19.

James T. Copley, Inc., 2618 New Suffix Blvd., Portsmouth, Va., CA $623,595, ARMORY, NORFOLK, VA. State Dpt. Military Affairs, State Office Bldg., Richmond, Va. Bids May 20. CD 5/31, under LB.

R. D. Lambert, 2313 Mohawk St., Norfolk, Va., CA $550,000, WAREHOUSE, Norfolk Industrial Park, NORFOLK, VA. Economy Stores, Inc., Raleigh and Euclid Aves., Norfolk, Va. A. Ray Pentecost, Colonial Ave. and 21 St., Norfolk, Va., archt. CD 9/25.

▲ **E. I. duPont de Nemours & Co.,** duPont and Nemours Bldg., Wilmington, Del., Owner Builds, $5,000,000, NYLON CORD PLANT ADDN., RICHMOND, VA.

▲ **J. M. Turner & Co., Inc.,** Electric Rd., Salem, Va., CA $2,495,745, REHABILITATING CENTER, ROANOKE, VA. Roanoke Memorial Hospital, Bellevue Ave., Richmond, Va., Bids May 25. CD 6/2 under LB.

H. A. Lucas & Sons, Inc., 5320 WMSN Rd., N. W., Roanoke, Va., CA $539,600, TELEVISION OFFICES and studios, ROANOKE, VA., Times-World Corp., 201 Campbell Ave. S. W., Roanoke, Va., CD 6/8 under LB.

H. D. Barnes, Inc., 233½ N. Greene St., Greensboro, N. C. CA $722,000, RELIGOUS EDUCATION FACILITY, GUILFORD COLLEGE, N. C. Guilford College Bd. Trustees, Guilford College, N. C. CD 5/9.

▲ **George A. Creed & Sons,** 755 Leesburg Rd., Columbia, S. C., LB $1,683,148, HOSPITAL addns., alterations, ROCK HILL, S. C. York County Hospital, Rock Hill, S. C. Bids June 1. CD 5/26.

▲ **S. S. Jacobs Co.,** Independent Life Bldg., Jacksonville, Fla., CA Est. $1,700,000, 12 story, 175,000 sq. ft. OFFICE, ATLANTA, GA. American Fore Loyalty Group, 10 Pryor St., Bldg., Atlanta, Ga.

Collins Constr. Corp., 3058 N. Federal Hy., Fort Lauderdale, Fla. LB $589,969 (7 bidders) DORMITORY AND MESSHALL, W. Hollywood Blvd., Riverside Circle, HOLLYWOOD, FLA. Riverside Military Academy, c/o B. C. Lukens, 1909 Tyler St. and J. M. Hartley, 1909 Harrison Ave., Hollywood, Fla., archts. Bids June 3. CD 5/25.

Giller & Fryd Constr. Corp., 523 Michigan Ave., Miami Beach, Fla., LB $623,331 (14 bidders), Florida City ELEMENTARY SCHOOL, N.W. 3 Terrace and N.W. 6th Ave., Florida City, REDONDO ELEMENTARY SCHOOL, 1485 S.W. 206th St., Homestead, MIAMI, FLA. Dade Co. Bd. Pub. Instructions, 1410 N.E. 2nd Ave., Miami, Fla. W. C. Gorman, 2296 Coral Way, Miami, Fla., structural engr. Mitchell-Gordon Assocs., 302 Bird Rd., Coral Gables, Fla., mech. and electrical engr. CD 5/18.

J. E. Ratcliff, Box 1943, Alexandria, La., LB $512,720 (11 bidders), 55,000 sq. ft. JUNIOR HIGH SCHOOL, Pineville, ALEXANDRIA, LA. Rapides Parish School Bd., Alexandria, La. Bids June 1. CD 5/26.

▲ **Cunningham-Limp Co.,** 3087 W. Grand Blvd., Detroit, Mich., CA est. $1,000,000, 70,000 sq. ft. HEAVY METAL MFG. PLANT, CHATTANOOGA, TENN. Owner, Cunningham Engineers, Inc., archt., 3087 W. Grand Blvd., Detroit, Mich.

J. E. Green Co., Division St., Johnson City, Tenn., CA $534,352 HOSPITAL addn., JOHNSON CITY, TENN. Johnson City Memorial Hospital, Roan St., Johnson City, Tenn. CD 1/26.

▲ **Neighborgall Constr. Co.,** 1216 7th Ave. RR, Huntington, W. Va., CA over $2,000,000 ACTIVATED CARBON PLANT, Big Sand River, CATLETTSBURG, KY. Pittsburgh Chemical Co., Century Bldg., Pittsburgh, Pa. Awarded June 3.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

† **Ind., Muncie**—PARKING AREA—BA 6/21—Dist. P. Wks. Office, Bldg. 1-A, Great Lakes, Ill., addnl. parking area, Naval Reserve Training Center, Spec. No. 31072/60(SF). Under $10,000.

Ill., Washington—BA 6/21—City, City Hall, No. 30-cs, 31-cs, 32-cs, 33-cs, 34-cs bit. road surf., 12 in. storm sewers, $95,000.

Mich., Detroit—BA 6/21—M. F. Wagnitz, city engr., 528 City-County Bldg., Detroit, Zone 26, grading, draining and paving together with concrete curb, following streets: Group 60-1,

PW-3547W-1, 603 ft., Eaton, Cheyenne to Meyers Sts.,
PW-3732F, 668 ft., Canyon, Mack to Warren Sts.,
PW-3733W-1, 284 ft., Elmira, Vaughan to Westwood Sts.,
PW-3734W, 336 ft., Lemay, Canfield to 336 ft. N. of Canfield St.,
PW-3735W, 656 ft., McDonald, Warren to Majestic Sts.,
PW-3736, 283 ft., Midland, 12th to Idaho Sts.,
PW-3737W, 258 ft., Norfolk, Marlow to Hubbell Sts.,
PW-3738W-1, 541 ft., Southampton, Cadieux to Hereford Sts.,
PW-3739W-1, 185 ft., Stahelin, Pembroke to Trojan Sts.,
PW-3740W, 372 ft., Tracey, 357 ft. S. of Eaton to Eaton Sts.; Group 60-5A,
PW-3722F, 878 ft., Daniels, Cicotte, Crowley and Warren Sts.,
PW-3723F, 248 ft., Livernois, Carbondale, Van Vouver, Linsdale Sts.,
PW-3724F, 586 ft., Cloverdale, Turner, Grand River, Burlingame Sts.,

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TS-14 features that cut dirt moving costs

2 engines — 296 total h.p.

all-wheel drive

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2 Torqmatic Drives

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*heaped capacity at 3:1 is 16 yds., at 1:1 slope, 20 yds.

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FOR MOVING EARTH, ROCK, COAL AND ORE

PW-3725W, 843 ft., Prairie, Monica, Grand River, Burlingame Sts.,
PW-3726FW, 1,295 ft., Wildemere, Genessee, Joy Rd., W. Chicago Sts.,
PW-3727F, 237 ft., Dexter, Wildemere, Buena Vista, Tyler Sts.,
PW-3728F, 952 ft., Stoppel, Livernois, Davison, Oakman Blvd.,
PW—3729W, 674 ft., Fourteenth, Twelfth, Grand and Pasadena Sts.,
PW-3730F, 940 ft., Appoline, Meyers, Puritan, Florence Sts.,
PW-3731F, 232 ft., Snowden, Littlefield, Pilgrim, Puritan Sts. CD 3/30/43.

Mich., Detroit—BA 6/22—City, Dpt. Water Supply, 735 Randolph St., Zone 26, Proj. WS-102B, 5,287 lin. ft. 54 in. water main, Dequindre between 12 and 13 Mile Rd. Plans deposit $10. CD 3/23.

† **Mich., Flint**—RIFLE RANGE—BA 6/22—Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A, Great Lakes, Ill., rifle range, Naval & Marine Corps Reserve Training Center. Spec. No. 30994/60. $25,000.

† **Ill., Great Lakes**—ROAD REPAIRS, etc.—BA 6/22—Dist. P. Wks. Office, 9th Naval Dist., Bldg. 1-A, repair roads, sidewalks, curbs, gutters, Forrestal Village, Naval Training Center, Spec. 31077/60, $250,000-$500,000. CD 9/25.

† **Wis., Madison**—ENGINE BUILD-UP SHOP—BA about 6/24—U. S. Eng., 536 S. Clark St., Chicago 5, Ill., 1 story, approx. 7,250 sq. ft., concrete fdn. engine build-up shop, exterior facilities, Truax Air Force Base ENG-11-032-60-114. $125,000. Plans deposit $8. CD 8/22/56.

† **Mich., Kincheloe**—VAULT—BA 6/27—Base Procurement Office, Kincheloe Air Force Base, film storage vault, base communications bldg. addn., Kincheloe Air Force Base, Inf. 20-612-60-75. CD 9/28/59.

O., Youngstown—BA 6/28—City, City Hall, section of Mahoning Ave. interceptor sewer, Pike Rd. area, $103,000. Havens & Emerson, Leader Bldg., Cleveland, consult. engrs. J. Philip Richley, city engr. CD 4/18.

† **Ohio, West Virginia and Pennsylvania**—BA 7/6—U. S. Eng., 925 New Federal Bldg., Pittsburgh 19, Pa., bank clearing Pools 7, 8 and 9, Ohio River, New Cumberland Locks and Dam, CIVENG—36-058-60-55. CD 9/29.

▲† **O., Dayton**—AIRCRAFT LABORATORY, etc.—BA About 7/28—U. S. Eng., Box 59, Louisville, Zone 1, Ky., aircraft laboratory, Fatigue Test (Sonic), Wright Patterson Air Force Base, ENG-15-029-50-44. $6,000,000. Plans deposit $10. CD 10/29.

BUILDINGS—BA

† **O., Sandusky**—BUILDINGS—BA 6/23—National Aeronautics & Space Admin., Lewis Research Center, 21000 Brookpark Rd., Cleveland, 7 steel buildings, Plumb Brook Facilities, IFB C 1112-PB. CD 6/16/58.

† **Mich., Brimley**—FISH HATCHERY—BA 6/24—U. S. Dpt. Interior, Fish & Wildlife Service, 721 West Lake St., Minneapolis 8, Minn., brick and tile fish hatchery, utilities, roads and parking area, Pendills Creek National Fish Hatchery.

O., Berea — DORMITORY — BA 7/6 — Baldwin-Wallace College, 120-bed dormitory, $600,000. Plans deposit $50. Heine, Crider & Williamson, 105 Front St., archts. CD 12/31.

Wis., Beaver Dam—ARMY RESERVE CENTER—BA about 6/27—U. S. Eng., 536 S. Clark St., Chicago 5, Ill., 1 story, 4,500 sq. ft., conc. fdn. Army Reserve Center, 1 story, 1,300 sq. ft. maintenance shop, exterior facilities, ENG-11-032-60-111. $150,000. Plans deposit $10.

HEAVY CONSTRUCTION—LB & CA

C & C Constr. Co., Inc., 4625 Indusrial Rd., Fort Wayne, Ind., CA **$669,908** est. $790,000, (12 bidders) sewage disposal plant, BUCYRUS, O. City, City Hall, Bucyrus, O. Bids May 17. CD 4/27.

† **Western Contracting Corp.**, 600 S. Howard, Sioux City, Iowa, CA **$833,681**, dredging Brush Point turn, Item 1, 6 mi. above Sault Ste. Marie, Mich., CIVENG-20-064-70-65, MICHIGAN and ONTARIO. U. S. Eng., 1101 Washington Blvd., Detroit 26, Mich. Bids May 19. CD 5/25, under LB.

† **Forrester Constr. Co.**, 600 Sill Bldg., Flint, Mich., CA **$683,785**, SAC GAM facilities, Wurtsmith Air Force Base, ENG-20-064-60-39, OSCODA, MICH. U. S. Eng., 1101 Washington Blvd., Detroit 26, Mich. Bids Apr. 26. CD 4/7.

▲ **William E. Schweitzer & Co.**, 2207 Dodge Ave., Evanston, Ill., CA **$1,077,000**, No. 80.77-60-3, fixed bridge over Chicago River, Fullerton Ave., CHICAGO, ILL., Dpt. Purchases, City Hall, Chicago 2, Ill. Bids Mar. 22. Awarded June 2. CD 3/25 under LB.

BUILDINGS—LB & CA

▲ **Richmond Homes Inc.**, 5825 Kimberly Rd., Bedford Heights, O., Own forces **$1,937,500**, 125 HOMES, Columbus Park Homes Estates, off Columbus Rd., ½ mi. west Richmond Rd. BEDFORD HEIGHTS, O.

Hannan Constr. Co., 11955 Shaker Blvd., Cleveland 20 O. CA est. **$500,000** (4 bidders) WAREHOUSE addn., BEDFORD HEIGHTS, O. Seaway Wholesale Grocery Co., 22801 Aurora Rd., Bedford Heights, O. Bids May 10. Awarded June 2. CD 5/9.

Oscar E. Bauman & Co., 3416 Edwards Rd., Cincinnati, O. Owner builds **$637,000**, 26 HOUSES, Verbet Dr. HAMILTON, O. Nunlist & Frolicher, Tri-State Bldg., Cincinnati, O. engrs.

▲ **Albert M. Higley Co.**, 2036 E. 22nd St., Cleveland 15, O. LB est. **$1,500,000**, (5 bidders) LIBRARY, UNIVERSITY HEIGHTS, O. John Carroll University, University Heights, O. Bids June 2. CD 5/13.

▲ **Westinghouse Electric Corp.**, 3001 Walnut St., South Philadelphia, Pa., CA Est. **$5,000,000**, 135,000 kw generating unit, Bay Shore Power Station, TOLEDO, O. Toledo Edison Co., Edison Bldg., Toledo, O. CD 4/14.

▲ **Power Constr. Co.**, 125 S. Marion St., Oak Park, Ill. CA **$1,248,567**, Fenton HIGH SCHOOL addn., BENSENVILLE, ILL. Fenton School Dist. 100, 1000 Green St., Bensenville, Ill. Bids May 17. Awarded May 31. CD 4/18.

▲ **Sumner Sollitt Co.**, 307 N. Michigan Ave., Chicago, Ill., CA Aprox. **$3,000,000**, HILTON INN, North Aurora, AURORA, ILL. Hilton Hotels Corp., 720 S. Michigan Ave., Chicago 5, Ill. Bids Apr. 26. CD 4/19.

LaSalle Constr. Co., 343 S. Dearborn St., Chicago 4, Ill., CA **$500,000**, 100 x 164 ft. Mens SOCIAL CENTER addn., 134-46 W. 62nd St., CHICAGO, ILL. The Salvation Army, 860 N. Dearborn St., Chicago, Ill., Skadberg, Olson Co., 2532 Milwaukee Ave., Chicago, Ill., archts. Awarded May 16.

▲ **Poirot Constr. Co.**, 2001 W. Pershing Rd., Chicago, Ill. CA **$2,250,000**, 1 and 2 story, 173,000 sq. ft. PRINTING PLANT, office, York Rd. near Tri-State Toll Rd., ELMHURST, ILL. Rueben H. Donneley Corp., 407 E. 25th St., Chicago 5, Ill. A. Epstein & Sons Inc., 2011 Pershing Rd., Chicago, Ill., archts. Awarded Apr. 8. CD 12/11.

Johnson Drake & Piper Inc., 112 N. 7th St., Terre Haute, Inc., CA **$623,000**, general contract, COLLEGE RESIDENCE HALL addn., SG-2, URBANA, ILL., University of Illinois, 256 Admin. Bldg., Urbana, Ill. Bids May 5. Awarded June 14. CD 5/19, under LB.

MISSISSIPPI TO ROCKIES

HEAVY CONSTRUCTION—BA

† **Neb., Fort Crook**—WARM-UP HOLDING PAD—BA 6/23—U. S. Eng., 1709 Jackson St., Omaha, warm-up holding pad, $100,000. CD 4/12.

† **Tex., El Paso**—BA 6/20—Purchasing & Contg. Office, Fort Bliss, El Paso, roads, curbs, sidewalks for family housing, Fort Bliss. CD 9/25/59.

† **Tex., Austin**—CHANNEL, etc.—BA 6/21—Base Procurement Office, Bergstrom Air Force Base, Austin, dredge channel to Matagorda Island Air Force Range, Bergstrom Air Force Base, IFB 41-687-60-55B. CD 9/11/58.

† **Iowa, Manchester**—FISH HATCHERY ROAD—BA 6/24—Fish & Wildlife Service, Dpt. Interior, 721 West Lake St., Minneapolis 8, Minn., b. conc. road surf. incl. sub-base, and concrete curb and gutter at National Fish Hatchery near here.

† **Missouri** — BA 6/27 — Worth Co. Soil Conservation Dist., Sheridan, Mo., channel imprvt. 4-A, constr. 8,000 lin. ft. channel imprvt. Incl. 25,200 cu. yd. excav., etc., Platte River Tributaries Watershed, Worth Co., MO-14. CD 2/24/59.

† **Arkansas**—BA 6/28—U. S. Eng., P.O. Box 97, Memphis, Tenn., levee repairs, Item No. R-211R SFR, Patterson to Leonard, St. Francis River Levee, Clay Co., ENG-40-041-60-90, $25,000. Plans deposit $1. CD 9/26/58.

† **Minn., Duluth**—RELOCATE GLIDE SLOPE & LOCALIZER SITES, etc.—BA 6/28—Federal Aviation Agency, Region 3, Procurement Branch, Rm. 110, 4825 Troost, Kansas City 10, Mo., relocate glide slope and localizer sites of instrument landing sys. and change electrical power supply for FSS, Duluth Municipal Airport, Inv. No. 3-60-69.

BUILDINGS—BA

▲ **Mo., St. Louis County**—HOSPITAL—BA 6/20—Sisters of Mercy, St. John's Hospital, 307 S. Euclid Ave., St. Louis, Zone 10, 12 story hospital, central tower, 11 story nurses home and school, convent, chapel, gymnasium, power plant and laundry, Ballas and Conway Rds. Extended date. Over $10,000,000. Bernard F. McMahon, 111 S. Meramec Ave., Clayton 5, Mo., archt. Louis Krasner & Hale & Harvie, 915 Olive St., St. Louis 1, Mo., structural engrs. Van & Vierse, 7908 Bonhomme, Clayton 5, Mo., electrical engrs. Delaney, Sheldon & Assocs., 4908 Delmar Blvd., St. Louis 8, Mo., engrs. CD 5/6.

▲ **Mo., St. Louis County**—PLANT—BA 6/20—Crown Zellerbach Corp., C. G. McDonald, ch. engr., 6363 Airport Way, Seattle, Wash., 245,000 sq. ft. plant for flexible packing materials, Hazelwood Area near Lambert-St. Louis Municipal Airport for Western-Waxide Div. Extended date. $2,000,000. Albert C. Martin & Assocs., 333 S. Baudry Ave., Los Angeles, Calif., archts. CD 5/20.

▲ **Colo., Lakewood**—SCHOOL—BA 6/21—School Dist. R-1, 1580 Yarrow St., 1 and 2 story, 68-889 sq. ft. Marie Creighton Junior High School, W. 6th and Kipling Sts., $1,000,000. Extended date. Musick & Musick, 1529 York St., Denver, archt. Hale V. Davis, Jr., 1733 York St., Denver, structural engr. M. S. Wilson, 3540 E. Jewell Ave., Denver, mech. engr. Albert McKittrick, 973 Lincoln St., Denver, electrical engr. CD 5/26.

▲ **Mo., St. Louis**—WOHL HEALTH CENTER—BA 6/21—St. Louis University, 221 N. Grand Blvd., Zone 3, 2 story, 44,000 sq. ft., 60-bed Wohl Health Center, Grand Blvd. and Hickory St. $1,000,000. Hellmuth, Obata & Kassabaum, Inc., 310 N. 10th St., St. Louis 1, Mo., archt. Eason Thompson & Assocs., 5423 Southwest Ave., St. Louis 39, Mo., engrs. CD 10/6/59.

▲ **Mont., Great Falls**—HOUSING—BA 6/21—Great Falls Housing Auth., 1500 6 Ave. S., 200 low-rent housing, $2,677,673.

▲ **Neb., Lincoln**—HOSPITAL ADDN.—BA 6/24—Bryan Hospital, Bd. Directors, 4848 Sumner St., Bryan Hospital, 3 story, bsmnt. wing, 1 story addn. over front existing bldg., second story on north wing, 3 story, bsmnt. nurses home, $2,800,000. Davis & Wilson, 226 Stuart Bldg., archts.-engrs. CD 10/16.

Mo., Columbia—JOURNALISM BLDG. ADDN.—BA 6/30—Curators of University of Missouri, 116 Jesse Hall, 2 story, bsmnt. 88 x 100 ft. brick, limestone, steel, etc. Journalism Bldg. addn. with connection to Neff Hall on Campus. $500,000. Marshall & Brown, 1016 Baltimore Ave., Kansas City, Mo., archts. CD 9/30/59, under LB.

▲† **Tex., El Paso**—HOUSING—BA About 7/6—U. S. Eng., P.O. Box 1538, Albuquerque, N. M., 510 Capehart housing units, Fort Bliss, ENG-29-005-60-68, $8,000,000. CD 4/5.

HEAVY CONSTRUCTION—LB & CA

Barbarossa & Sons, Inc., 402 33rd N., St. Cloud, Minn., LB **$520,093** (4 bidders), sewer project, BLOOMINGTON (P.O. MINNEAPOLIS), MINN. Village, Village Hall, Bloomington, Minn. Bids June 3. CD 5/19. **Lametti & Sons, Inc.**, 211 N. Pascal St., St. Paul, Minn., LB **$585,971** (5 bidders), Sched. B, sewer line; LB **$321,302** (6 bidders), Sched. F, sewer line (Bloomington, Minn.).

▲ **S. J. Groves & Sons Co.**, Wesley Temple Bldg., Minneapolis, Minn., LB **$1,629,166** (5 bidders), apron, taxiway, terminal area, Wold-Chamberlain Field, MINNEAPOLIS, MINN. Minneapolis-St. Paul Metropolitan Airport Comn., 2429 University Ave., St. Paul, Minn. Bids June 2. CD 5/24.

Gamble Constr. Co., 5739 Wise Ave., St. Louis 10, Mo., CA **$679,855**, circular planetarium, Forest Park, ST. LOUIS, MO. City, Bd. P. Service, 304 City Hall, St. Louis 3, Mo. Bids May 17, awarded June 3. CD 5/24, under LB.

† **Electrical Constr. Co.**, Box 2178, Columbus, O., CA **$761,060**, Fort Thompson Substation Stage 01, Missouri River Basin Proj. Spec. DC 5295, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Huron, S. D. Bids May 3. CD 5/11, under LB.

BUILDINGS—LB & CA

Thomas McCall, 324 W. 5th St., Palisades, Colo., CA **$600,000**, nine 2 story, 24 x 40 ft. MEDICAL-DENTAL Development, GRAND JUNCTION, COLO. Bookcliff Development Co., 2131 N. 7th St., Grand Junction, Colo. CD 2/4.

▲ **M. W. Kellogg Co., Inc.**, 711 3rd Ave., New York, N. Y., CA est. **$15,000,000** design and construct AMMONIA PLANT, JOPLIN, MO. Solar Nitrogen Chemical Inc. (Atlas Powder Co., New Murphy Rd. and Concord Park, Wilmington, Del. and Standard Oil of Ohio, Midland Bldg., Cleveland, O.). CD 4/28.

▲ **Robert E. McKee Constr. Co.**, 2708 Inwood Rd., Dallas, Tex., CA **$8,798,400**, est. $8,500,000 MEDIUM SECURITY PRISON incl. twin 2 story Dormitories, MOBERLY, MO. Missouri Bd. P. Bldgs., 100 State Capitol, Jefferson City, Mo. Bids May 31. Awarded June 3. CD 6/3, under LB.

▲ **Hobert Sissel**, Traditional Homes, Wild-Bild Corp., Gerald Simkins, Alfred Durham and Jess Gathright, 2263 Cherry St., Springfield, Mo., CA est. **$9,500,000**, Mardeana Hills Housing Development: 500 RESIDENCES, Broadmoor, Battlefield, Campbell and Fort Aves., SPRINGFIELD, MO. McLean Enterprises, 1846 E. Sunshine, Springfield, Mo.

▲ **John I. Hammons** and **Lee McLean**, 2621 E. Sunshine Ave., Springfield, Mo., Owners Build. Over **$1,250,000**, Southern-Hills Shopping Center, 130,000 sq. ft. incl. 30 stores, 1200 car parking, Sunshine, Normandy and Woodward Sts. and Southern Hills addn. east of city, SPRINGFIELD, MO.

▲ **Martin K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan., CA est. **$1,150,000** CHURCH, WICHITA, KAN. First Methodist Church, Bd. Trustees, 330 N. Broadway, Wichita, Kan. Bids Jan. 14 CD 1/12.

▲ **Hercules Development Co.**, 904 Magaffin St., El Paso, Tex., Owner Builds, **$6,400,000** SHOPPING CENTER, $76,000 earthwork, grading, filling leveling, etc.; $57,500 water sys.; $190,000 hard-paved area for 10,000 cars; $115,000 sanitary-storm sewers, 132 acre tract, Ysleta cutoff and US Int. 10, EL PASO, TEX. Brockway, Weber & Brockway, West Palm Beach, Fla., archts. Grand total $6,838,500 CD 6/1.

† **H. B. Zachry Co.**, Constr. Div., Box 10188, San Antonio, Tex., LB **$666,000** Base bid (5 bidders) G. M. Range Training and hawk facilities, Fort Bliss, Eng 29-005-60-87, EL PASO, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids May 26. CD 4/18.

▲ **Marine Development Corp.**, Republic National Bank Bldg., Dallas, Tex., Owner Builds, **$1,250,000**. SHOPPING CENTER: $92,125. paved area and auto center; $61,000. site earthwork, FARMERS BRANCH, TEX. CD 2/4.

▲ **Mallette & Belin Bldg. Co. Inc.**, 10106 Fleming St. Houston, Tex., CA **$433,100**. 35 DWELLINGS: **$420,000**. 28 dwellings; **$409,500**. 31 dwellings, HOUSTON, TEX. Mallette & Belin Bdg. Co. Inc., and O. R. Winter, 10106 Fleming St., Houston, Tex. Grand total, $1,262,600. CD 5/24.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Los Angeles**—BA 6/22—City, 153 City Hall, Woodman Avenue grade separation, Saticoy to Valerio Sts. $1,000,000.

▲† **Orgeon**—BA 6/23—U. S. Eng., City-County Airport, Walla Walla, Wash., grading, draining, surf. fencing, for detour US Hy. 30 at Watchman's Dip and UPRR shoefly, in conjunction with John Day Dam, CIVENG-45-164-60-49, $2,500,000. Extended date. CD 5/13.

Wash., Seattle—SOUTH CONCOURSE EXTENSION—BA 6/28—Port of Seattle, Bell St. Terminal, Seattle, Zone 1, 2 story 34x640 ft., steel frame south concourse extension with 1 story, 26x140 ft. deplaning lobby, Seattle-Tacoma International Airport. Over $88,000. Plans deposit $50. Young, Richardson & Carleton, Central Bldg., Seattle, Zone 4, archts. CD 6/9/59.

▲ **Calif., Oakland**—PASSENGER TERMINAL—BA 8/1—Bd. Port Comrs., foot of Grove St., 175,000 sq. ft. passenger terminal incl. ten gate loading positions, 11 story control tower, Metropolitan Oakland International Airport. $4,725,000. Warnecke & Warnecke, 111 New Montgomery St., San Francisco, Calif., archts. CD 7/15/58.

BUILDINGS—BA

▲† **Calif., Fort Ord**—HOUSING—BA 6/20—U. S. Eng., 180 New Montgomery St., San Francisco, 500 units Capehart Housing, Fort Ord No. 3. Extended date. $8,000,000. CD 4/11.

▲† **Ariz., Fort Huachuca** — ENLISTED MEN'S BARRACKS, etc.—BA 6/28—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., enlisted men's barracks and admin. bldg., ENG-04-353-60-107, $1,500,000. CD 9/5/58.

CALIFORNIA—MAINTENANCE STATION—BA 7/7—State Div. Hys., 120 S. Spring St., Los Angeles, constr. 9 bldgs, utilities, grading and surf. yard areas division of highways maintenance station US Highway 91-466 at Mountain Pass about 15 mi. west of Nevada State Line, San Bernardino Co. $172,000.

California—MAINTENANCE STATION—BA 7/7—State Div. Hys., 120 S. Spring St., Los Angeles, constr. 5 bldgs., utilities and grading and surf. yard area division of highways maintenance station, northwest of Big Bear City, San Bernardino Co. $247,000.

† **Calif., Barstow**—ENLISTED MEN'S BARRACKS—BA 7/7—P. Wks. Office, 11th Naval Dist., 1220 Pacific Hy., San Diego, Zone 1, enlisted men's barracks, Yermo Area, Marine Corps Supply Center, Spec. 30197. $250,000-$500,000. CD 9/17/57.

HEAVY CONSTRUCTION—LB & CA

▲ **General Electric Co.**, 235 Montgomery St., San Francisco, Calif., CA $1,033,094, furnishing, installing one 75,000 kva vertical shaft, water wheel driven, alternating current synchronous type generator and excitation switchgear with appurtenant equip. and controls for Camino Powerhouse, Upper American River Proj. Inv. 2171, SACRAMENTO, CALIF. Sacramento Municipal Utility Dist., 1708 59th St., Sacramento, Calif. Bids May 26. Awarded June 2. CD 6/2, under LB.

K.E.C. Co., 22018 Norwalk Blvd., Artesia, Calif., LB $552,877 (2 bidders) East Garden Grove-Wintersburg Channel from Beach Blvd. to New Hope St. and Oceanview Channel and Beach Blvd., Garden Grove, SANTA ANA, CALIF. Orange County Flood Control Dist., Court House, Santa Ana, Calif. Bids June 1. CD 4/29.

BUILDINGS—LB & CA

▲ **Alfred Brown Co.**, Dooly Bldg., 109 W. 2nd South, Salt Lake City 1, Utah, LB $1,215,618, est. $1,390,000, Base Bid, (8 bidders), elevated PLAZA incl. Cafeteria, Gas Pump, etc. 200 car parking ramp, SALT LAKE CITY, UTAH. State Bldg. Bd., Capitol Bldg., Salt Lake City 14, Utah. Bids June 3. CD 5/19.

▲ **Jacobsen Constr. Co.**, 421 W. 13th South, Salt Lake City 15, Utah, CA est. $1,300,000, 10 story PARKING RAMP, SERVICE STATION, etc., 19 E. 2nd South, SALT LAKE CITY, UTAH. Walker Center Corp., Walker Bank Bldg., Salt Lake City 1, Utah. Skidmore, Owens & Merrill, 1 Montgomery St., San Francisco, Calif., archts.

▲ **J. A. Tiberti Constr. Co.**, 1818 Industrial Rd., Las Vegas, Nev., CA $2,020,000, Westerg HIGH SCHOOL, LAS VEGAS, NEV., Bd. Trustees, Clark Co. School Dist., 301 S. 4 St., Las Vegas, Nev., Bids May 26. Awarded May 26.

▲ **Nielsen & Lindgren & Swinerton**, 3127 Jefferson St., San Diego, Calif., CA $1,266,550, White Sands of La Jolla RETIRED HOME addn., LA JOLLA, CALIF. Southern California Presbyterian Homes, 1501 Wilshire Blvd., Los Angeles, Calif. Bids May 2. Awarded June 2. CD 5/9, under LB.

▲ **B. O. Metcalf Co.**, 9480 Charleville Rd., Beverly Hills, Calif., CA $3,200,000, 16 story concrete APARTMENT, 10787 Wilshire Blvd., LOS ANGELES, CALIF. Donald Duncan, 10799 Wilshire Blvd., Los Angeles 24, Calif. I. K. Weber, 11753 Wilshire Blvd., Los Angeles, Calif., archt.

LeMount Corp., 895 W. Whittier Blvd., La Habra, Calif., CA $630,000, 60 frame and stucco DWELLINGS, 2322 N. Lewis St., SANTA ANA, CALIF. J. & O. M. Inc., 895 W. Whittier Blvd., La Habra, Calif.

Beals & Poore, 4300 24th St., Sacramento, Calif., LB $504,600, (5 bidders), 39,400 sq. ft. alterations, addns. to State Div. Hys. HEADQUARTERS DPT. incl. truck repair shop, loading dock, steam and wash rack, etc., 34th and R Sts. W. O. 4285SC, SACRAMENTO, CALIF. State Div. Architecture, 1120 N St., Sacramento, Calif. Bids June 2. CD 5/9.

Del E. Webb Constr. Co., P. O. Box 9396, San Diego 9, Calif., CA Approx. $777,348, 71 RESIDENCES Northeast Claremont No. 2, SAN DIEGO, CALIF. Del E. Webb Constr. Co., 2729 North Central Ave., Phoenix, Ariz.

Cunningham Builders, Inc., 10950 Dale St., Santa Ana, Calif., Owner Builds, $737,300, 73 frame and stucco DWELLINGS, Tract 2482, SANTA ANA, CALIF.

David Young, 285 Boat Canyon, Laguna Beach, Calif., Owner Builds, $469,440, 12 APARTMENTS, 1450 S. Townsend St., SANTA ANA, CALIF.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **QUEBEC**—Dpt. P. Wks., Parliament Bldgs., Quebec City,

Angus Robertson Ltd., 5035 Western Ave., Montreal, Que., CA Est. $2,500,000, bridge over St. Maurice River, Shawinigan. (Correction—contractor). CD 5/12, under CA.

BUILDINGS—LB & CA

▲ **Quemont Constr. Ltee.**, 6655 Cote des Neiges Rd., Montreal, Que., CA $1,250,000, PROVINCIAL HOUSE near Main Rd., STE. GENEVIÈVE, QUE. Monastero de Notre Dame de Charite du Bon Pasteur, 104 Sherbrooke St. E., Montreal, Que. Bids Apr. 19. CD 4/29.

FOREIGN

BUILDINGS—LB & CA

▲ **Fa. W. Schramm**, Charlottenburger Chaussee 49, Berlin, Germany, CA est. $1,000,000 ELECTRICAL PLANT, BERLIN, GERMANY. Brown, Boveri & Cie, Berburgerstr. 21, Berlin, Germany.

▲ **Stone & Webster Engineering Ltd.**, 20 Red Lion St., London WC 1, England (subsidiary Stone & Webster Engineering, 90 Broad St., New York, N. Y. U. S. A.), CA est. $2,000,000 design and construct 1 story, 100,000 sq. ft. PLANT, 27 acre site, MUNSTER, GERMANY. Armstrong Kork GMBH (sub. of Armstrong International, Geneva, Switzerland), Munster, Germany.

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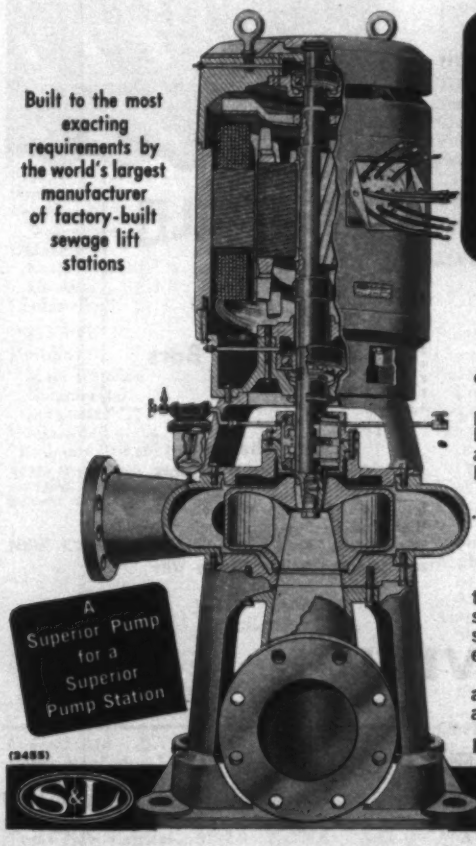

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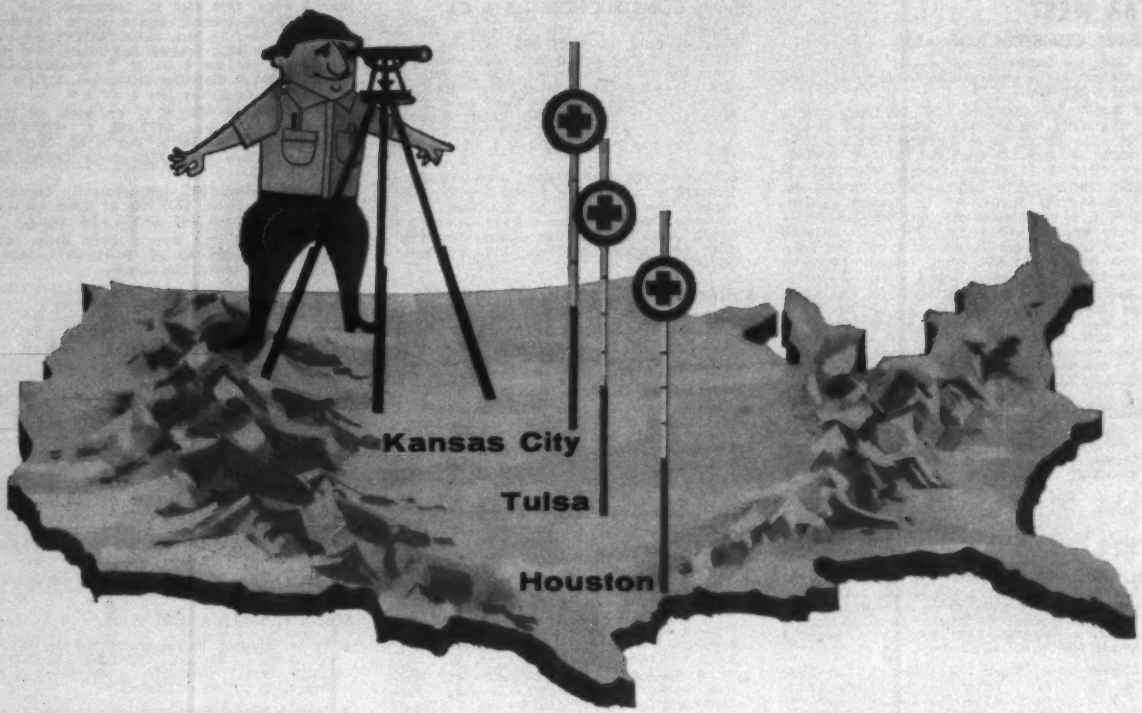
KANSAS CITY 15, MISSOURI
Plant: Lenexa, Kansas



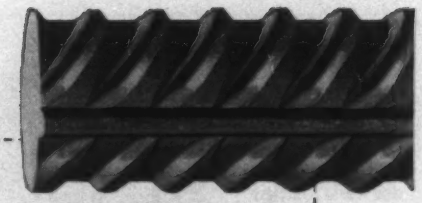
Anyway you survey the situation . . .

You'll get fast delivery of reinforcing steel

Sheffield's three strategic plant locations assure you fast shipment of Sheffield Crescent Reinforcing Bars and other construction products. That means delivery timed to your schedule. It can mean important savings in shipping costs.

Sheffield Crescent Reinforcing Bars assure you other advantages, too. The Sheffield "crescents" give the strongest possible bond of concrete to steel (ratio of shearing area to bearing area is 6-to-1). Sheffield reinforcing bars distribute bond stresses so uniformly that the bars are self-anchoring. No necessity for hook anchorage, in most cases. Sizes include Nos. 18 and 14.

Anyway you look at it, it pays to specify Sheffield Crescent Reinforcing Bars. Get in touch with your nearby Sheffield distributor.



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ARMCO
Crescent
Reinforcing Bars

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SHEFFIELD DIVISION

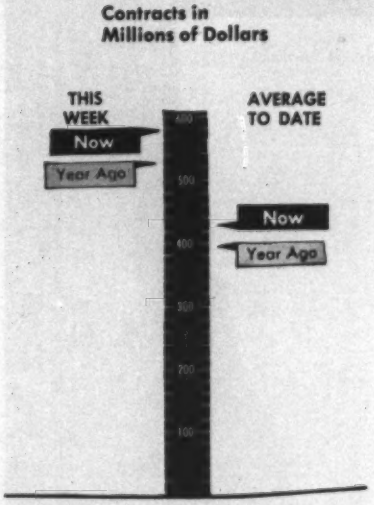
Sheffield Plants in Kansas City, Tulsa and Houston

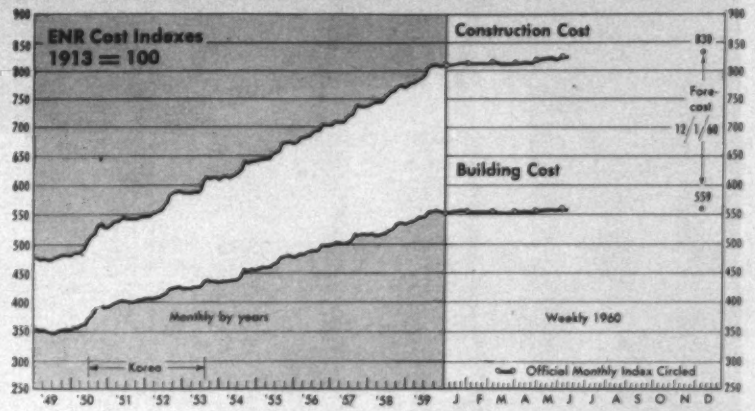
ARMCO STEEL CORPORATION

OTHER DIVISIONS AND SUBSIDIARIES: Armco Division • The National Supply Company • Armco Drainage & Metal Products, Inc. • The Armco International Corporation • Union Wire Rope Corporation • Southwest Steel Products

Construction Scoreboard

This Week . . .




ENR Cost Indexes 1913 = 100
Construction Cost
Building Cost
Forecast 12/1/60
839
559
Monthly by years
Weekly 1960
Korea
Official Monthly Index Circled
'49 '50 '51 '52 '53 '54 '55 '56 '57 '58 '59 J F M A M J J A S O N D

ENR INDEXES (1913=100), 20-cities average	Week of June 9 1960	% Change from May 12 1960	% Change from June 11 1959
Construction Cost	825.67	+0.42	+3.46
Building Cost	559.77	+0.25	+1.94

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850. 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

AMOUNT OF CONTRACTS LET

Contracts Awarded In 50 States By Type	This Week millions	Cum. 24 wks 1960 millions	Chge '59-'60 %
All Heavy Construction	$583.2	$10,190.5	+ 9
By Ownership			
PRIVATE	370.9	5,614.0	+23
PUBLIC	212.3	4,576.5	− 5
State & Municipal	180.4	3,536.3	+ 5
Federal	31.9	1,040.2	−27
By Type of Work			
PUBLIC			
Waterworks	8.3	208.8	+ 5
Sewerage	12.1	256.3	−10
Bridges*	11.4	384.2	+42
Highways	64.6	1,456.2	+ 3
Earthworks, Dams & Waterways	16.6	344.3	− 9
Buildings:			
Excl. Housing	61.2	1,078.7	−15
Housing	20.0	249.3	−24
Unclassified	18.1	600.0	− 9
PRIVATE			
Buildings:			
Mass Housing	180.2	2,907.7	+41
Commercial	79.7	1,035.9	+ 1
Industrial	108.5	1,211.4	− 4
Unclassified	2.5	457.7	+119

*Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of June 9 millions	Cum. 23 wks 1960 millions	Chge '59-'60 %
Corporate Securities	$217.6	$1,350.6	−32
State and Municipal:			
All Except Housing	73.2	2,884.5	− 3
Housing		13.6	−56
Federal Loans	2.1	71.6	+12
Federal Aid		2,717.8	+1,410
Total Nonfederal	$292.9	$7,038.8	+41
Federal Appropriations:			
Projects in U. S.		191.6	+400
Outside U. S.		6.8	
Total New Capital	$292.9	$7,236.4	+43

Latest Month . . .

CONTRACTS AWARDED

	1960 May (millions)	1960 5-Mos. (millions)	Percent Change from 1959 May	Percent Change from 1959 5-Mos.†
Total U. S. (ENR reported)	$1,803.3	$8,477.3	− 9	+ 4
Private	903.4	4,529.3	−10	+15
Public	899.8	3,948.0	− 7	− 6
State and Municipal	704.5	3,037.5	+ 7	+ 4
Federal	195.4	910.5	−37	−29
ENR Volume Index, 1913=100	607	551	−13	+0.2

NEW CONSTRUCTION CAPITAL

Total U. S.	3,525.4	6,764.5	+316	+51
State and Municipal Bond Sales	496.9	2,704.1	+26	− 2
Corporate Security Sales	159.7	1,101.2	−64	−33
Federal Loans, Aid (nonfederal work)	2,697.1	2,784.3	+18,519	+4,569
Federal Appropriations, (federal work)*	171.7	174.9	.....	.....

* Includes funds for outside U. S.

† Based on average week: 21 weeks in first five months of 1960 and 22 weeks in first five months of 1959.

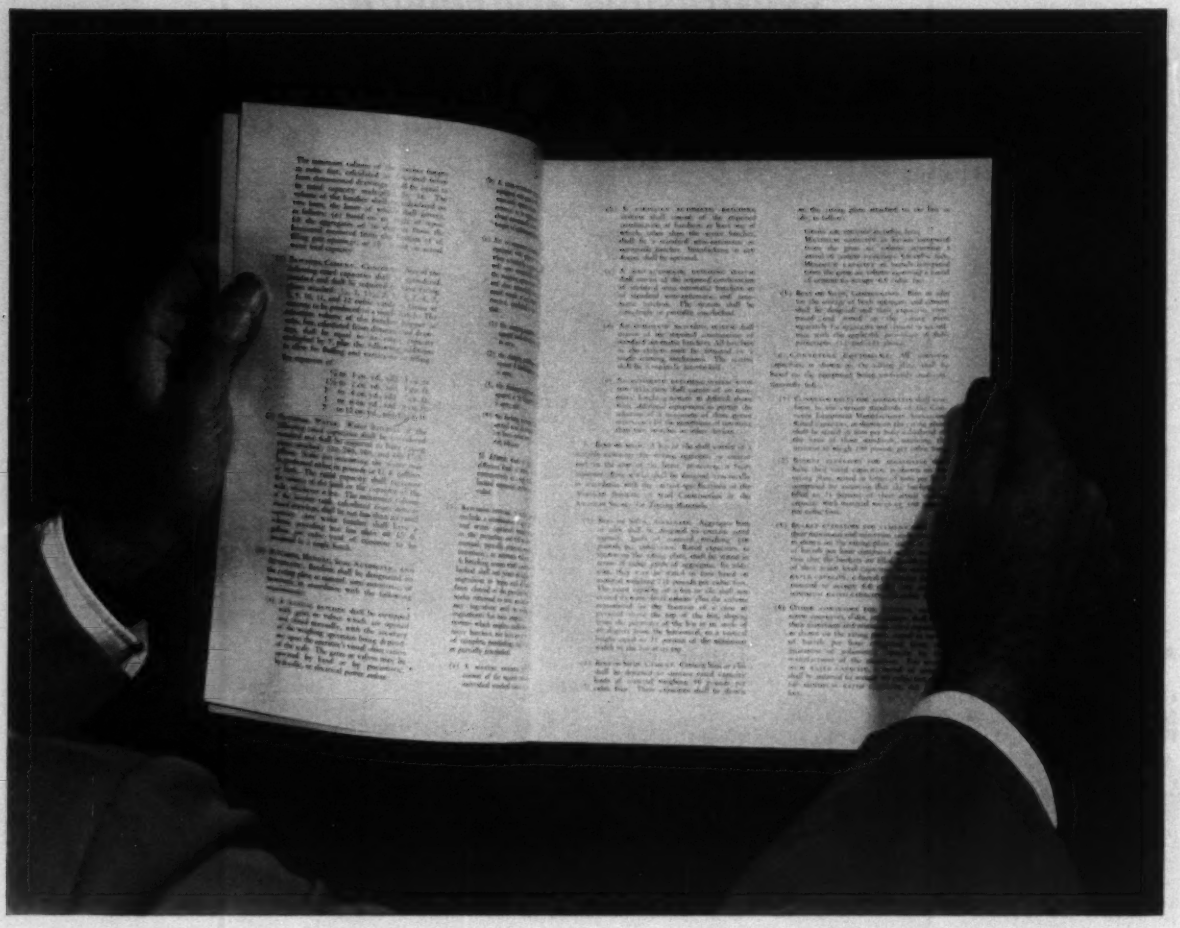
MATERIALS SHIPMENTS

	1960 Feb. (F) Mar. (M) Apr. (A)	Cum. (No. of Mos.)	Percent Change from Year Ago Mo.	Cum.
Portland Cement, Bur Mines, thous bbls	27,341(A)	71,364(4)	− 9	−13
Concrete Paving Awards, PCA, thous sq yd	8,406(A)	29,603(4)	− 6	− 8
Fabricated Structural Steel, thous tons	287(A)	1,014(4)	− 1	+ 2
Bookings, AISC, thous tons	345(A)	1,198(4)	+17	+11
Reinforcing Bars, Net, AISI, thous tons	162(A)	633(4)	−36	−17
Lumber, NLMA, mil fbm	3,055(A)	11,446(4)	− 7	− 2
Orders, mil fbm	2,981(A)	11,313(4)	− 8	− 5
Production, mil fbm	3,048(A)	11,749(4)	− 2	+ 3
Clay Products, Bureau of Census				
Brick, Unglazed, Common, Face, mil bri	370.6(F)	721.8(2)	− 6	+17
Vitrified Clay Sewer Pipe, thous tons	106.0(F)	213.0(2)	+ 5	+22
Structural Tile, Unglazed, thous tons	33.5(F)	67.5(2)	+ 1	− 6
Asphalt Products, Bureau of Census				
Asphalt Roofing, thous sales sqs	3,746.3(M)	9,699.9(3)	−46	−25
Asphalt Siding, thous sales sqs	55.5(M)	171.2(3)	−49	−25
Aluminum, Wrought, Net, Bur Census				
Sheet and Plate (non-heat treatable), mil lbs	107.1(M)	304.9(3)	−0.5	+10
Wire and Cable, mil lbs	24.7(M)	69.8(3)	+11	− 1
Extruded Shapes (soft alloys), mil lbs	68.7(M)	200.1(3)	+ 3	+ 8

EMPLOYMENT AND FAILURES

Contract Const Employment, BLS, thous	2,273(M)	2,372(3)**	− 6	+ 1
Contractor Failures, Dun & Bradstreet				
Number	220(A)	849(4)	+33	+21
Liabilities, thous	$13,661(A)	$55,851(4)	+58	+58

** Average per month



HAVE YOU READ THE STANDARDS FOR CONCRETE PLANTS?

For producers of quality concrete, here is important new information.

It is the compilation of "Concrete Plant Standards" developed by the Concrete Plant Manufacturers Bureau and adopted by its members, who have built most of the plants in use today.

These member companies represent a combined total of 229 years in concrete plant manufacturing They have pioneered progressive plant design, and through continuous development, improved plant components and their operational efficiency — the sound foundations for quality standards.

These industry standards, approved by the Board of Directors of the National Ready Mixed Concrete Association, establish capacity ratings for all types of bins, silos, batchers, elevators and conveyors which store and process cement and aggregates. They define the bases on which capacities are rated. They wipe out confusion over nomenclature by providing standard terms for plant components.

Certified by Rating Plate

All equipment built to comply with these requirements and now being shipped by member manufacturers bears a Rating Plate certifying capacity and compliance.

Copies of Standards Available

Users of cement and aggregate handling equipment, and engineers, will find a copy of these standards valuable. They represent another step in the technological progress of the construction industry. Direct your request to the Concrete Plant Manufacturers Bureau, 1411 K Street N. W., Washington 5, D. C.

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Warren, Ohio

THE C. S. JOHNSON COMPANY
Champaign, Ill.

NOBLE COMPANY
Oakland, Calif.

Capital Spending Plans Trimmed a Bit

Quarterly projections looked like a record . . .

SEASONALLY ADJUSTED AT ANNUAL RATES

	1960 Jan.-Mar.	1960 Apr.-June	1960 July-Sept.
	(Billions of dollars)		
MANUFACTURING	$14.10	$14.8	$15.1
Durable Goods Industries[1]	7.15	7.3	7.6
Primary Iron and Steel	1.60	1.6	1.8
Primary Nonferrous Metals	.30	.3	.4
Electrical Machinery & Equipment	.60	.6	.7
Machinery, Except Electrical	1.15	1.1	1.2
Motor Vehicles and Equipment	.80	.8	.9
Transportation Equipment, Excluding Motor Vehicles	.45	.4	.4
Non-durable Goods Industries[2]	6.95	7.5	7.6
Food and Beverages	.90	1.0	1.0
Textile Mill Products	.50	.6	.6
Paper and Allied Products	.70	.7	.8
Chemicals and Allied Products	1.45	1.6	1.6
Petroleum and Coal Products	2.55	2.7	2.7
MINING	1.00	1.1	1.1
RAILROADS	1.00	1.1	1.2
TRANSPORTATION, OTHER THAN RAIL	2.00	2.4	2.3
PUBLIC UTILITIES	5.75	5.8	5.9
COMMERCIAL AND OTHER	11.35	11.9	12.0
Total	$35.15	$37.0	$37.5

. . . But new estimates are more conservative.

	1959 Actual Spending	1960 March Estimate	1960 (Latest Estimate)
	(Billions of dollars)		
MANUFACTURING	$12.07	$15.13	$14.90
Durable Goods Industries	5.77	7.66	7.47
Primary Iron and Steel	1.04	1.73	1.71
Primary Nonferrous Metals	0.31	0.37	.35
Electrical Machinery & Equipment	0.52	0.74	.65
Machinery, Except Electrical	0.91	1.19	1.17
Motor Vehicles and Equipment	0.64	1.02	.85
Transportation Equipment, Excluding Motor Vehicles	0.39	0.47	.42
Stone, Clay and Glass Products	0.53	0.68	.65
Other Durable Goods	1.44	1.47	1.67
Non-durable Goods Industries	6.29	7.47	7.43
Food and Beverages	0.83	0.84	.94
Textile Mill Products	0.41	0.47	.58
Paper and Allied Products	0.63	0.70	.75
Chemicals and Allied Products	1.24	1.64	1.59
Petroleum and Coal Products	2.49	2.93	2.64
Rubber Products	0.19	0.25	.26
Other Non-durable Goods	0.51	0.64	.67
MINING	0.99	1.00	1.07
RAILROADS	0.92	1.02	1.06
TRANSPORTATION, OTHER THAN RAIL	2.02	2.14	2.14
PUBLIC UTILITIES	5.67	6.07	5.85
COMMUNICATIONS, COMMERCIAL AND OTHER	10.88	11.66	11.82
Total	$32.54	$37.02	$36.85

[1] Includes industries not shown separately: stone, clay and glass; and other durable goods.
[2] Includes industries not shown separately: rubber products, and other non-durable goods.

Businessmen are now more cautious about their capital spending plans for 1960 than they were earlier this year.

The government's latest report on spending plans shows that businessmen now expect to lay out a total of $36.8 billion on plant construction, modernization and equipment programs this year. Although still a hefty amount (just a bit below the record $36.96 billion poured into such programs in '57), the figure represents a leveling off in the upward swing of capital spending plans that began a year ago.

Only three months ago businessmen were predicting a record $37-billion year (ENR Mar. 17, p. 21).

While the latest report—compiled by the Commerce Department and the Securities and Exchange Commission—is in line with other business indicators now taking some altitude out of the "Soaring Sixties," it is not necessarily pessimistic news for construction.

For one thing, capital spending plans don't predict contract awards, they follow them. Spending plans reflect the cash payments expected to be made on work already under way or about to begin. What is probably showing up in the moderately reduced spending plans is the six-month fall-off in contract awards that ended in March and that reflected the 1959 steel strike.

For another, industry is showing a continuing eagerness to initiate the planning of new projects. New plants are pouring into ENR's Backlog of Proposed Industrial Building at a high rate. Proposed last month were plants with a total estimated cost of $485 million. That was a 17-month high and the second largest monthly total in three and one-half years.

Whether these project plans become job starts remains to be seen. Could be that more than a few industrial companies are going slow on new plant starts until stronger winds point the economic weathervane.

As far as spending for this year is concerned, it will be stronger than last year—but most of the rise has already occurred. The latest government survey indicates that the rise from here on out will be only moderate. However, should industry find the confidence to push industrial building plans into the project stage at the rate they are entering the proposal stage, spending will spurt right back to the record level forecast in March.

(Turn the page)

Here are the highlights of present spending plans:

Public utilities have lowered their sights by $200 million for total spending this year—from $6.1 billion to $5.9 billion. In actual dollars, public utilities will be spending almost $1.6 billion on capital outlays during the July-August-September quarter.

The steepest cutback in spending plans since the last survey is centered in the manufacturing industries as they look to the last half of the year. This is all the more disappointing because manufacturers had started off the year with a burst, exceeding earlier spending forecasts for the first six months.

But in the three months since the last SEC-Commerce report, manufacturers reduced their planned outlays for the year by $232 million to a total of $14.9 billion, or about 7%. In actual dollars, that's one-quarter more than manufacturers spent in 1959.

Spending by manufacturers in the upcoming third quarter is programmed at an annual rate of $15.1 billion (seasonally adjusted)—a drop of almost $1 bilion, or about 7%. In actual dollars, the third quarter amount is slated at $3.7 billion.

Spending in most durable goods industries is expected to hold practically steady from the second to third quarters. Autos is the big exception, with spending expected to climb by 20% as companies switch over to new model lines.

In soft goods industries, a tapering off is predicted, with declines noted among food and beverage, textiles and chemical companies.

In non-manufacturing lines, railroads, trade and public utilities are budgeting increases from the second to third quarter. Mining and non-rail transportation industries show a second quarter rise and a leveling off for the summer months.

Eight Equipment Firms Become Four

Some construction equipment manufacturers, apparently feeling the squeeze of competition, are becoming more responsive to merger invitations. Four companies have been absorbed by others in recent weeks, the most recent being Sherman Products, Inc. of Royal Oak, Mich., which has been acquired by Ford Motor Co.

Other corporate marriages include: Barber-Greene Co., Aurora, Ill. and Smith Engineering Works, Milwaukee; American Hoist & Derrick Co., Saint Paul, and Industrial Brownhoist Corp., Bay City; Unit Crane & Shovel Corp., Milwaukee, and Bay City Shovels, Inc., Bay City, Mich.

Ford will obtain most of the assets of Sherman Products for $2.3 million. Sherman Products manufactures power diggers, backhoes, and transmissions and industrial loaders for tractors. Ford tractors have used some Sherman equipment for several years. Last year, Ford started to compete with Sherman diggers. Sherman Products will be dissolved.

Sherman's last report, covering nine months ended Nov. 30, showed earnings of $78,563 on sales of $4.5 million.

Barber-Greene will acquire Smith Engineering through an exchange of stock, six shares of Barber-Greene for each share of Smith Engineering. Barber-Greene manufacturers asphalt mixing, paving, ditching and materials handling equipment. Smith Engineering produces the Telsmith line of products, which includes crushing and screening equipment for construction, mining and aggregate producing companies.

Barber-Greene reported sale of $31.5 million and net earnings of $1.1 million for the year ended Aug. 31, 1959. Smith Engineering reported sales of $6.5 million and net of $321,138 for the year ended Sept. 30, 1959.

Under the proposed merger (subject to approval of stockholders on May 31) Smith Engineering will operate as a division of Barber-Greene.

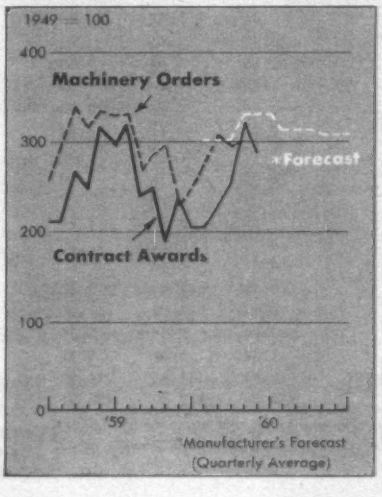
American Hoist & Derrick Co. acquired Industrial Brownhoist by the purchase of the latter's outstanding stock. The amount paid by American Hoist for this stock has not been disclosed. Industrial Brownhoist will operate as a wholly owned subsidiary of American Hoist. American manufactures cranes, buckets, hoists and materials handling equipment. Industrial Brownhoist produces cranes, excavating machinery and hoists.

Bay City Shovels, Inc., is now operating under its own name as a wholly owned subsidiary of the purchaser, Unit Crane Shovel Corp.

Equipment Orders Stay High

Construction equipment orders stayed high in April, making three consecutive months at the same general level, but they were lower than last year's booming rates. April orders for construction and mining equipment were 2% above March, but 4% below the April record set in 1959.

April New Orders Index went up to 300, based on a monthly average dollar volume in 1949 as 100. The average for the first four months of the year falls 2% below 1959's January-April average, 295 as compared with 301, according to the most recent report of the McGraw-Hill Economics Department.



The orders index probably will continue to trail behind last year's peak rates during May and June, but the outlook for the second half of 1960 is good. Orders for the July-December period may well surpass those for the last half of 1959.

Contractors' new business is picking up. Awards for July-December are expected to exceed those for the first two quarters and do much better than last year's second half. The volume of equipment orders for the rest of 1960 should pull the 12-month total above 1959 by 5%.

ENR's sister publication, CONSTRUCTION DAILY, reports a record rate of contracts to date in the current quarter, an indication that new orders placed with equipment manufacturers in May and June should come close to last year's peak pace for these two months. This year could have the second highest dollar volume on record for the May-June period.

Producers of construction and mining machinery don't look for any marked change in their new business from last year.

You Name the Job . . .

No matter what it is, you have the answer with the new Homelite "300" Pumps. Three models are available . . . the quiet, slow speed model for economical, high capacity pumping jobs . . . the standard-speed, fast-priming model for jobs requiring higher discharge pressures . . . the high-volume pressure model for jetting, fire-fighting, irrigation and other jobs requiring high discharge pressures. Each model weighs only 103 pounds. Each pumps 300 gallons per minute . . . 18,000 G.P.H. Fast self-priming, up to 28 ft. above water level. And as an extra bonus, each of the new "300's" has a new ceramic-coated seal that greatly reduces maintenance costs.

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Construction Daily

A McGRAW-HILL PUBLICATION

Dept. ENR 108 **330 West 42nd Street, New York 36, N. Y.**

About Kaiser . . .

The Henry J. Kaiser complex started construction contracting in 1914. Now Kaiser Engineers' provides complete engineering-construction services for industries and governments throughout the world. Nuclear projects include construction of a reactor at Hanford, Washington, design of the experimental gas-cooled reactor, construction of nuclear facilities buildings for Vietnam. Steel plants in the U. S., India, Brazil, Japan, an aluminum production complex in the State of Uttar Pradesh, ore concentrating plants in Quebec and Labrador, cement plants in Arkansas and Hawaii, missile bases and facilities in Idaho and California, a periclase plant in Michigan, a power plant in Pennsylvania, oxygen plants in California illustrate the scope of Kaiser activities.

Heavy construction activities of Kaiser Engineers include sponsoring or participating in hydroelectric projects and dams in Australia, Brazil and Ghana abroad and in the U. S. in Washington, New Mexico, Arkansas and California.

The home office is Kaiser Center, Oakland, California.

Deferred Increases Continue High

Long-term contracts assure sizable pay boosts for year ahead. New York pacts set 20 cents for '62.

You don't need a crystal ball to predict that construction wages will not level off for several years to come.

Deferred wage increases negotiated last week in new long-term labor contracts generally continued to set a 10- to 20-cent floor for wage negotiations in 1961 and 1962.

Most impressive indication of what the future holds came out of New York City in the form of new labor agreements that will give 50,000 workers in seven cement alliance trades a 65-cent wage boost payable in five installments over the next three years. First installment is 15 cents followed by three 10-cent increments six months apart. Last and largest of the installments is 20 cents, effective July 1, 1962 for the succeeding 12 months.

The New York settlements cover carpenters, excavating laborers, paving laborers, cement masons, cement and concrete workers, operating engineers and metal lathers. They are expected to set the pattern for 15 other trades that are still negotiating. A five-cent increase in health and welfare is included in addition to the basic wage boosts.

To cost-conscious employers, the most heartening aspect of the negotiations was assurance of union cooperation in the curbing of indirect labor costs—the area where the first real leveling off of costs will come, if they come at all.

The unions, for example, gave up Lincoln's Birthday as a paid holiday, agreed to payment by check and to the computation of fringe benefits on a straight-time basis and generally assured contractors of their cooperation in the elimination of wasteful work practices and in adjusting to technological progress. Both sides felt the cost of the contracts will be less than superficial arithmetic may suggest.

Earlier, New York City bricklayers had settled for a 56-cent increase in a two-year contract. The first of the installments—15 cents—is earmarked for a new vacation fund, followed by two pay boost installments of 20 cents each commencing next January. An additional increase of one cent will be used to finance an industry promotion fund.

Although the New York increases are comparatively big, a number of unions in other areas have matched them fairly closely.

Iron workers Local 24 in Denver, Colo., for example, won a 52½-cent package in a two-year contract. Its members will get a 50-cent boost in basic wages payable in four installments—25 cents now, five cents in October, 10 cents next April and a final 10 cents the following October. The health and welfare contribution is also increased by 2½ cents.

In Buffalo, N. Y., where strike-bound general contractors are holding out for a three-year, 55-cent settlement, the steamfitters have settled with mechanical contractors on the basis of base pay and savings plan increases that total 55 cents over three years. Ten cents goes into the pay envelope now, 10 cents into a savings fund December 1, 10 cents into wages next June, 10 cents into savings the following December, 10 cents into wages June 1962 and five more cents into the savings fund December 1962.

Elsewhere, contractors in Detroit, plagued by two iron worker strikes, have settled one of them on the basis of a two-year, 25½-cent contract. The radius for travel pay, however, was reduced by five miles and the union withdrew its demands for show-up time, a pension plan and an exclusive hiring hall plan.

Iron workers in northern Indiana settled their strike for 31 cents over two years—12½ cents now and 10 cents next year in wages, a vacation fund contribution of 7½ cents in December and one cent for an apprentice training fund.

Chicago iron workers, however, were still on strike last week, but a settlement on the basis of 20 cents this year and 25 cents next year was reportedly imminent. In the same area, however, roofers were still out, with travel pay the big stumbling block. And plasterers were continuing their strike in the face of contractor efforts to make changes in the present pension, health and welfare, and promotion fund provisions.

In Niagara Falls, N. Y., iron workers settled for 20 cents this year and 10 cents next year in a two-year contract that also provides for a one-cent apprenticeship contribution. Another iron worker local in Rochester, N. Y., has taken 15 cents each year in a two-year contract.

Laborers in Cincinnati, have signed for 15 cents for one year. In Toledo, four more crafts have followed the two-year, 25-cent pattern established earlier. They get 17 cents in two installments this year and eight cents next year.

And the Rhode Island Chapter of Associated General Contractors has settled with the carpenters for a three-year contract that will boost wages 15 cents each of the first two years and 12½ cents the third year.

Prevailing Wages Criticized

Construction workers on a number of federal or federally assisted construction projects have received "inflated pay" as a result of the Davis-Bacon Act, according to the U. S. Chamber of Commerce.

The Chamber accused the Secretary of Labor last week of flaunting the law by using nearby metropolitan union rates as the prevailing rates in local areas.

Under the law, the Secretary is required to determine the rates of pay that prevail "in the city, town, village, or other civil subdivision in which the work is performed." These become the minimum rates that contractors must pay on federal construction projects and on a number of federally assisted projects, such as schools, airports, hospitals and highways.

The Chamber specifically listed projects in five towns for which, it said, the wage determinations of the Secretary exceeded prevailing local rates. For example, on a Selma, Ala., school project, it said, contractors were required to pay carpenters $2.25 an hour, although the local rate was only $1.75. The rate for concrete finishers was set at $2.85 but the local rate was only $1.75.

In only one of the five instances, were contractors able to upset the Secretary's wage determinations, the Chamber said.

The law—originally intended to prevent disruption of local wage practices by importation of low-priced labor—is no longer necessary, the Chamber maintains.

It has advocated absolute repeal of the law as a long-range goal and judicial review of wage determinations as a short-run goal.

Negroes Form Labor Council

Aims of the national organization include an end to discrimination in jobs and apprenticeship training

Those who seek to eliminate racial discrimination in the trade union movement and in the nation's industries have another ally in the new national organization known as the Negro American Labor Council.

Founded in Detroit, Mich., last month by members of existing trade unions, NALC is headed by A. Philip Randolph, who is the only Negro vice president of the AFL-CIO.

It is dedicated to the interests of Negro unionists within the trade union movement.

Although formation of the council has been in the making for over a year, its organization coincided with vigorous but inconclusive efforts on the part of the President's Committee on Government Contracts to enforce the ban on racial discrimination on government contract work (ENR May 26, p. 102).

The council's objectives include removal of any color bar in union membership, in job advancement and in apprenticeship training. Members of the construction industry have been accused of being among the worst offenders.

Mr. Randolph, who was unopposed in his election to the presidency, said the new council of Negro unionists is not a rival of the AFL-CIO, is not an incipient bargaining group and will operate within the framework of the union movement. Although Mr. Randolph has locked horns with AFL-CIO President George Meany over the handling of the Negro problem on several occasions, he claims he and Mr. Meany are still "friends."

He also denied that the council will become a party to black nationalism.

"While the Negro American Labor Council rejects black nationalism as a doctrine and practice of racial separatism," Mr. Randolph said, "it recognizes the fact that history has placed upon the Negro, and the Negro alone, the basic responsibility to complete the incompleted Civil War revolution by keeping the fires of freedom burning."

Informed observers feel that NALC could become a powerful force in organized labor. Its officers are trade union officials who may be in a position to affect union policies with respect to Negroes without fomenting spectacular discord.

While it looks as if the moderate approach used by Mr. Randolph in the past may prevail, at least temporarily, two developments bear watching:

- Grumblings from the convention floor, plus the council's endorsement by the National Association for the Advancement of Colored People, reflected strong pressures for a militant organization. And considerable interest was evidenced by convention delegates in the kind of weapons that have been somewhat successful in recent southern demonstrations.
- A number of rank and file delegates were openly critical of the Negro policies of top AFL-CIO leaders George Meany and Walter Reuther. Both were accused of engaging in lip service and hypocrisy. This attitude, coupled with the restlessness of militant elements may make the council increasingly antagonistic to the leadership of the AFL-CIO.

Meanwhile, Mr. Meany has kept the Negro issue on federal construction contracts smoldering by accusing the General Services Administration of whitewashing racial discrimination by contractors on two of the projects in the nation's capital.

GSA recently accepted a panel decision that none of the Negroes who have applied for work is qualified. The absence of training schools available to Negroes was considered one of the big difficulties.

Mr. Meany again charged that the prime responsibility for discrimination on the Washington jobs in violation of existing Executive Orders and contractual commitments rests not with the union, which does not operate an exclusive hiring hall, but with the contractors "who by contract with the government have assumed such responsibility."

Labor in Brief . . .

- **Peace committee named**—Building trades members of the reactivated Building Trades-Industrial Union Department Committee, which will seek a jurisdictional peace formula for the two AFL-CIO departments (ENR May 19, p. 186), are C. J. Haggerty, department president; Gordon Freeman, electrical workers; Peter Schoemann, plumbers; J. H. Lyons, iron workers; Maurice Hutcheson, carpenters; L. M. Raftery, painters.

- **Pastures not so green?**—Operating engineers and boilermakers employed by New Mexico potash firms have received wage increases of about 24 cents an hour in a two-year contract. Direct wage increases are 8 cents now, 9 cents next year. Contract changes and fringe improvements account for the balance.

- **Honored for safety**—Ebasco Services Inc. has been awarded a special citation by the Florida Industrial Commission for outstanding achievement in safety. Ebasco worked a total of 523,959 man-hours in Florida last year with only one minor lost-time accident.

- **Prevailing wages**—The Wyoming AFL-CIO has agreed to support efforts of the State Building and Construction Trades Council to get a bill requiring payment of prevailing wages on all state contracts.

- **Will of iron**—The iron workers' Local Union 97, which represents iron workers throughout British Columbia, has withdrawn from the international union and formed one of its own. Reason given: international intervention in local affairs.

- **Compare your wage boosts**—A three-man board set up under the Railway Labor Act has recommended a five-cent wage boost plus liberalized fringe benefits, making a total package of about 11.5 cents, for nonoperating railroad union men who now average $2.41 an hour. Earlier, an arbitration board granted railroad engineers, now averaging $2.83, a 2% increase this year and 2% next year for an estimated total increase of 11.3 cents.

- **Banned in Boston**—A federal court has enjoined a Boston local of the teamsters union from using threats of coercion as a mean of forcing two subcontractors on the Boston Common underground garage project to quit using trucks of a hauling firm that the union has been unable to organize.

TRUCK MIXERS place concrete directly in inner forms for 12′ down-the-road paving slab for the relocation of Limekiln Pike, outside Philadelphia. Later, the same truck mixers efficiently poured the adjoining strip. Contractor: James D. Morrissey, Inc., Philadelphia.

Variable width road poured with 3-rail forms

On this highway relocation, outside Philadelphia, the contractor decided to lay uniform 12′ lanes, which constituted most of the road, and set a third form line outside one lane, where needed for a varying 2′ to 8′ of additional width. After the 12′ slab was machine spread and finished, the inner form rail was pulled and the variable width strip was then poured and hand-finished.

Ready mixed concrete was ideally suited for this job, as the same truck mixers were able to pour both the down-the-road 12′ slab sections and the adjoining variable width strip, in addition to apron areas.

Concrete was poured in 7″ and 3″ lifts, reinforced with wire mesh. The spreading-finishing equipment, set for 12′ work, rode the inner form line. The additional widths, varying up to 8′ in one 750′ section, necessitated hand finishing as screed extension was inapplicable.

Low slump ready mixed concrete, a 6¼-sack mix with 3½% air entrainment, designed for 3000 psi at 7 days, was processed to rigid specifications and placed directly in the forms by truck mixers of certified design, capacity, mixing speed and water control accuracy.

You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards which are maintained for your protection by the

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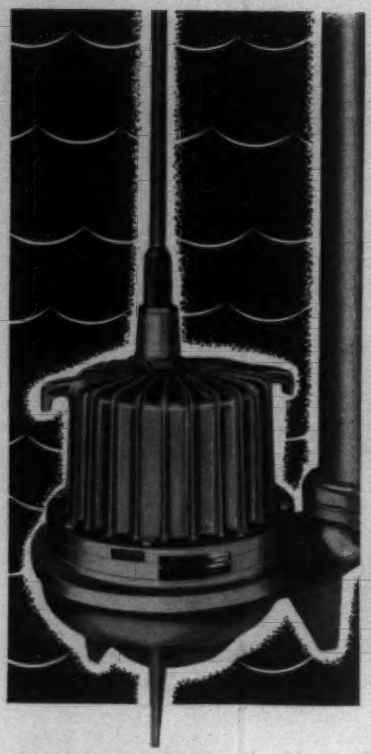
Chain Belt Company
Milwaukee, Wis.
Challenge Manufacturing Company
Los Angeles, Calif.
Concrete Transport Mixer Company
St. Louis, Mo.
Construction Machinery Company
Waterloo, Iowa
Hercules Galion Products, Inc.
Galion, Ohio
The Jaeger Machine Company
Columbus, Ohio
The T. L. Smith Company
Milwaukee, Wis.
Westinghouse Transit Mixer Division
Indianapolis, Ind.
Whiteman Manufacturing Company
Pacoima, Calif.
Willard Concrete Machinery Co., Ltd.
Lynwood, Calif.
Worthington Corporation
Plainfield, N. J.

WITHIN ONE HOUR after the 12′ slab was machine finished, it was possible to pull the inner form, then place the two courses of concrete with reinforcing fabric for the variable width strip between the outer form rail and the finished slab. Strip was hand-finished.



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Pay Must Be Earned

Inflationary wage boosts can lead to destruction

The problem of balancing wage and benefit increases with improvements in productive efficiency has inevitably become a matter of national concern. At stake is the survival of individual employers and industries and the job security of their workers.

That assertion was made last week by R. Conrad Cooper, executive vice president and chief labor negotiator of U. S. Steel Corp.

Speaking before the Canadian Manufacturers Association in Toronto, Mr. Cooper said concern over the problem of unearned and inflationary increases stems from a principle as simple as this: It is not possible to give something for nothing indefinitely.

"Just as surely as night follows day," he said, "anyone who really profits from inflationary wage and benefit increases is getting something for nothing—something unearned which comes at the expense of someone else."

The pinch, Mr. Cooper explained, shows up in the weakening of a company's or industry's competitive position.

The problem of changing existing work rules to facilitate the elimination of wasteful work practices thus became the basic issue in last year's steel strike, Mr. Cooper said. The steel industry was faced with two alternatives: Pay the penalty of becoming increasingly noncompetitive by keeping the restrictions on local work rule changes; or change the rules to eliminate waste, improve productive efficiency and become increasingly competitive.

Mr. Cooper contended that unearned wage increases, at least in the steel industry, mean higher prices or smaller profits, and perhaps postponement of research efforts or installation of new facilities. The net result jeopardizes the industry's competitive position as well as the job security of steelworkers, he said.

He asserted that the entire problem of wasteful work practices in the steel industry "is a job that must be tackled both by the companies and the union, by every employee and every foreman. It is a job that must be done, and done correctly, lest the wheels of competitive misfortune spin us beyond the point of no return."

A special committee, which has been set up this year under the labor contract that settled the steel strike, is working on the problem.

New book tells

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Despite acid fumes and Ohio winter...

M50® paint applied in Spring matches color of *M50* paint applied previous Fall

One of the many outstanding properties observed during National Lead exposure tests of *M50*® basic lead silico chromate pigment paints was a remarkable resistance to fading. The practical value of this property is brought out by an event in the repainting of The Harvard-Dennison Bridge in Cleveland, Ohio.

At the close of the 1958 painting season, this repainting had been only partly completed. In Cleveland, that Winter was particularly hard on paint . . . periods of heavy precipitation and cold alternating with warm, sunny days. And . . . notice the smoke in the picture above... this particular bridge lies in the direct path of acid fumes from the stacks of a nearby chemical plant.

Despite all this, when the contractor began to paint again in the Spring, no color difference could be detected at the boundary between the previously applied *M50* paint film and the new.

What makes this color retention so remarkable is that it is obtained in a finish paint that also provides the rust inhibition of a standard primer. Only paints made with basic lead silico chromate pigment combine the anti-corrosion action of a primer with the weather resistance, durability and tintability of a finish paint.

Now, for the first time . . .

Paint suppliers are providing states, counties and municipalities with true "Defense-in-Depth" against corrosion . . . paint systems with an active rust inhibitor, basic lead silico chromate, in *all* coats, primer, intermediate and finish. If you are not yet acquainted with these modern paints, ask your regular suppliers about them. They're setting new standards for durable metal protection.

Applying *M50* alkyd primer coat over commercially sand-blasted surface.

Grey *M50* alkyd finish coat goes on with complete color uniformity.

M50 an **oncor** TRADEMARK *Pigment... A Development of*

National Lead Company

General Offices: 111 Broadway, New York 6, N.Y.

OFFICIAL PROPOSALS

Bids: June 23, 1960.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, Canal Law and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A. M., advanced standard time, which is nine-thirty o'clock A. M., eastern standard time, on the 23rd day of June 1960, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson, Bistrict Engineer, 353 Broadway, Albany, New York						
Albany (Rte. 9W)	R.C. 60-106	Ravena-Becker Corners, S.H. 8349 Bethlehem Center-Beckers Corns., S.H. 5643 Albany-Bethlehem Center, S.H. 5499	10.40	Asphalt Concrete	$20,000 Plans $5	$374,000
Essex, Greene, Rensselaer, Saratoga & Schenectady	FARDC 60-1	Permanent Radar Detector Traffic Counter Stations on S.H. 891, 8384, 610, 5314 & CR 30 Project No. SWHP-1(17)	....	Installing 5 Radar Detector Traffic Counter Stations	$400 Plans $5	6,900
Rensselaer (Rte. 20)	R.C. 60-88	Schodack Center-Nassau, S.H. 536; Nassau Village, S.H. 949; Nassau Vill., S.H. 5163; Nassau-Brainard, S.H. 285; Riders Mills-Brainard, S.H. 1521; East Nassau-Brainard, S.H. 439	7.29	Asphalt Conc. = 7.26 Mi. Misc. Work = 0.03 Mi.	$11,000 Plans $5	208,000
Saratoga (Rte. 50)	R.C. 60-94	Ballston-Ballston Lake, Pt. 2, S.H. 5085; Ballston-Ballston Lake, Pt. 1, S.H. 5062	5.09	Asphalt Concrete	$15,000 Plans $5	288,000
Saratoga (Rte. 9)	FARC 60-102	Malta-Saratoga, S.H. 611 Project No. F-U-639(18)	0.78	Asphalt Conc. = 0.71 Mi.; Misc. Work = 0.07 Mi. Comp. Pl. Gird. 113' Span Total	$28,000 Plans $5	512,000
Schenectady (Rte. 20, 406 & 158)	R.C. 60-86	Guilderland-Duanesburg, Pt. 2, S.H. 8097; Gifford Church-Gifford Corns., S.H. 1680; Schenectady-Guilderland, S.H. 577	11.50	Asphalt Conc. = 10.93 Mi. Misc. Work = 0.57 Mi.	$27,000 Plans $5	432,000
Washington (Rte. 22)	FARC 60-98 FASH 60-5	Granville-Troy Stage, S.H. 104 Granville Connections Project No. F-523(8)	3.55 (0.16 Acc.)	Asphalt Conc. = 3.47 Mi.; Asph. Conc. (Acc.) 0.16 Mi. Misc. Work = 0.08 Mi.; Prestressed Conc. Beam Bridge Span 47.3'	$59,000 Plans $5	1,058,000
Washington (Rte. 22A)	R.C. 60-87	Middle Granville-Hampton-Fair Haven, S.H. 1937	7.49	Asphalt Concrete	$15,000 Plans $5	267,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Herkermer, Montgomery & Oneida	FARDC 60-2	Permanent Radar Detector Traffic Counter Stations on S.H. 8012, 5028, 5346 and City of Utica Project No. SWHP-1(17)	....	Installing 4 Radar Detector Traffic Counter Stations	$300 Plans $5	5,300
DISTRICT No. 3, Earl E. Towlson, District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga, Oswego & Wayne	FARDC 60-3	Permanent Radar Detector Traffic Counter Stations on S.H. 5016, 429, 1516 and in City of Oswego Project No. SWHP-1(17)	....	Installing 4 Radar Detector Traffic Counter Stations	$350 Plans $5	6,300
Wayne	FASS RC 60-9	East Penfield-Walworth, Pt. 2 (FASS 58-15), C.R. 138 Project No. S-322(3)	5.31	Asphalt Conc., Type 1A	$3,000 Plans $5	56,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston (Rte. 63)	R.C. 60-95	Dansville-Geneseo, Pts. 1 & 2, S.H. 5723	4.54	Asphalt Concrete	$12,000 Plans $5	219,000
Livingston & Ontario	FASS 60-7	Naples-Hunts Hollow-Honeoye, Pt. 5, C.R. 36 Project No. S-475(1)	7.10	Bit. Double Surface Treat. Pavt. = 7.05 Mi. Misc. Work = 0.05 Mi.	$55,000 Plans $5	1,010,000
Monroe, Livingston (Rte. 383, & 36)	R.C. 60-101	Garbutts Crossing, S.H. 5097; Scottsville-Mumford, S.H. 5046; Leroy-Caledonia-Mumford, S.H. 5021	4.34	Asphalt Concrete	$23,000 Plans $5	416,000
Monroe (Rte. 31)	FARC 60-91	Holley-Brockport Pt. 2, S.H. 5425 Project No. F-1037(4)	2.34	Asphalt Concrete	$19,000 Plans $5	332,000
Ontario (Rte. 5 & 20)	FARC 60-97	Geneva-Canandaigua, Pt. 2, S.H. 207 Project F-338(10)	5.56	Asphalt Concrete	$20,000 Plans $5	354,000
Wyoming (Rte. 78)	R.C. 60-99	Java Center-Waldo Corns.-Smith Corners, S.H. 1716	4.07	Asphalt Conc. = 4.03 Mi. Misc. Work = 0.04 Mi.	$10,000 Plans $5	185,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, State Office Bldg., 65 Court Street, Buffalo 2, New York						
Erie (Rte. 20)	FARC 60-90	Transit Road, Pt. 4, S.H. 9217 Project No. F-1079(9)	0.07	Asphalt Conc. Type 2B; Widen & Rehabilitate; Pl. Gird. Br. 3 Sp. 170.5' Total	$5,000 Plans $5	88,000
Erie (Rte. 18)	FARC 60-92	Hamburg-North Collins, S.H. 523 Proj. No. F-750(19)	4.35	Asphalt Conc. = 4.21 Mi. Misc. Work = 0.14 Mi.	$30,000 Plans $5	525,000
Erie & Niagara (Rte. 270)	M 60-5	New Home Bridge (E-241); over Erie Canal near Village of Wendelville	....	Cleaning & Painting Bridge	$500 Proposal Only $2	9,400
DISTRICT No. 6, William J. Dennis, District Engineer, State Office Bldg. 30 West Main Street, Hornell, New York						
Steuben (Rte. 15)	FARC 60-100	Avoca-Wallace-Cohocton, S.H. 5564 Project No. F-627(13)	0.47	Asphalt Conc. = 0.46 Mi.; Misc. Work = 0.01 Mi. Prestress. Conc. Br. Span 74.5'	$12,000 Plans $5	206,000
DISTRICT No. 7, Robert W. Sweet, District Engineer, 444 Van Duzee Street, Watertown, New York						
Franklin (Rte. 30)	R.C. 60-104	Duane Center-Mountain Pond, S.H. 9007	5.40	Asphalt Conc. Type 1A	$75,000 Plans $5	1,319,000
Jefferson (Rte. 3)	FARC 60-85	Oswego County Line-Aspinwall Corners, Pt. 2, S.H. 8393 Project No. F-539(10)	4.88	Asphalt Conc. Type 1A	$8,500 Plans $5	153,000
Lewis (Rte. 12D)	R.C. 60-93	Oneida County Line-Turin, S.H. 5327	4.48	Asphalt Conc. Type 1A	$7,500 Plans $5	136,000
St. Lawrence (Rte. 37)	FARC 60-83	Morristown-Hammond, Pt. 2, S.H. 970 Morristown-Hammond, Pt. 2, S.H. 970A Project No. F-650(10)	4.98	Asphalt Conc. Type 1A	$60,000 Plans $5	1,082,000
St. Lawrence (Rte. 37)	FATC 60-3	City of Ogdensburg, Rte. 37 Arterial, S.H. (FAC 57-16); Ogdensburg: Rte. 37 Connections, S.H. (FASH 57-19) Project No. U-650(11)	2.08	Traffic Signals	$2,500 Plans $5	48,000
DISTRICT No. 8, Kurt G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Columbia (Rte. 20)	R.C. 60-115	New Lebanon-Brainard, S.H. 615 Pittsfield-New Lebanon, S.H. 4	6.60	Asphalt Conc. = 2.49 Mi Misc. Work = 4.11	$14,000 Plans $5	259,000
Columbia, Dutchess, Orange, Ulster & Westchester	FARDC 60-4	Permanent Radar Detector Traffic Counter Stations on S.H. 762, 135, 537, 453, 8256, 8408, 53-15, 308, 231, 5372, 1456, City of Poughkeepsie & on Hutchinson River Pky. Project No. Swhp-1(17)	....	Installing 13 Radar Detector Traffic Counter Stations	$900 Plans $5	16,000
Orange	FASS 60-8	Forge Hill Road, C.R. 74 Project No. S-544(1)	0.36	Bit. Double Surface Treatment Comp. I-Beam Bridge, 3 Spans Total Length 256.2 ft.	$17,000 Plans $5	319,000
Putnam (Rte. 301)	FARC 60-66	McKeels Corners-Kent Cliffs, S.H. 9082 Project No. S-354(2)	2.21	Asphalt Concrete	$27,000 Plans $5	490,000
Ulster (Rte. 213)	FARC 60-89	Eddyville Bridge, S.H. 5192; Kingston-Rifton, S.H. 116 Project No. US-S-485(2)	1.45	Asphalt Concrete	$20,000 Plans $5	355,000
Westchester	TS 60-8	Sprain Brook Parkway (Cross County Parkway to Tuckahoe Road)	2.27	Traffic Signs	$2,500 Plans $5	42,000
DISTRICT No. 9, Joseph C. Frederick, District Engineer, 71 Frederick Street, Binghamton, New York						
Broome (Int. Tr. Rte. 81)	FISH 60-4	Inter. Rte. 505, Penna. St. Line-Five Mile Point (Sunset Drive to Route 17) Project No. I-81-1(11)	0.46 (0.46 Acc.)	9" Cem. Conc. Pavt. = 0.72 Mi.; Asphalt Conc. = 0.18 Mi.; Misc. Work = 0.02 Mi. Incl. Pier Footings on HGS at Aetna Rd.	$32,000 Plans $5	573,000
Broome (Rte. 17)	R.C. 60-96	Windsor-Deposit, S.H. 5338 Deposit, S.H. 265	6.71	Asphalt Concrete	$16,000 Plans $5	293,000
Chenango (Rte. 26)	FARC 60-84	Cincinnatus-Taylor-Pitcher, Pt. 2, Pitcher-South Otselic, S.H. 8161; Otselic-South Otselic, Pt. 2, S.H. 663 Project No. F-424(4)	0.37	Top Course, Bit. Mac. Type 1 = 0.35 Mi. Misc. Work = 0.02 Mi. Double Box Br.-Skew Span 31 = Ft.	$4,500 Plans $5	83,000
Sullivan	FARDC 60-5	Permanent Radar Detector Traffic Counter Station on County Rd. 53 Project No. SWHP-1(17)	....	Installing A Radar Detector Traffic Counter Station	$60 Plans $5	1,100
DISTRICT No. 10, Austin M. Sarr, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Tr. Rte. 278)	FIBE 60-1	Interstate Route Connection 516 & 517 Bruckner Expressway (Sect. 1-Contract 3) (LaFayette Ave.-Lowell St.) Project I-278-1(48)	0.85 (1.73 Acc.)	8½" Reinf. Conc. Slab Roadway (Main Line) = 0.78 Mi.; Colored Cem. Conc. Pavt. = 0.07 Mi. Asph. Conc. (Acc.) = 1.17 Mi. Cem. Conc. Pavt. (Acc.) = 0.56 Mi. Incl. Struct. Steel Via. 57 Span, Total 4,118' Welded Girder & W.F. Beam 4 Span 406.5'	$740,000 Plans $10	13,430,000
Nassau	BP 60-74	City of Long Beach (Roosevelt and Pacific Boulevards)	....	Beach Protection, 2 Stone Groins	$25,000 Plans $10	480,000

(Continued on opposite page)

OFFICIAL PROPOSALS

(Continued from preceding page)

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specification, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bond shall conform to the provisions of the Highway Laws, as set forth in "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: August 21, 1960

Iraqi Republic
Iraqi Ports Administration—Basrah
Notice—Tender No. 136/1960
For the Preparation of Drawings and Specifications for the Construction of a General Recreation Centre at Sindbad Island, Margil

The Iraqi Ports Administration invites Architects to participate in a bid for the preparation of drawings and specifications for the construction of a general recreation centre at Sindbad Island, Maqil. This centre is to consist of a Cafe and a Restaurant, Public Park, Luna Park, Rowing Club, Swimming Pool and another for Children, Tennis Courts, Ten Separate Motels, a Pier for motor and rowing boats, Planetarium, Artificial Cave, the protection of the Islands shores, etc.

Tender forms and the islands drawings are obtainable without charge from the office of the Inspectorate General of Ports and Navigation in the Ministry of Communications, Baghdad, or from the Mudir of Tender and Purchase, Iraqi Ports Administration, Basrah, or from the Iraqi Republic Representatives abroad.

This tender closes on 21st August 1960.

The specifications are available at the Embassy of Iraq, 2135 Wyoming Ave. N.W., Washington, D. C.

Bids: July 1, 1960

Board of Education
Bureau of Construction
Notice Re: Prequalification Forms for Contractors

APPROVED AS TO FORM
Acting Corp. Counsel

NOTICE IS HEREBY GIVEN THAT the Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York will receive applications for prequalification from contractors who may wish to submit bids for the proposed hereinafter specified contracts as follows:

General construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures.

Public School 84—New building., West 91st St., & 92nd St., East of Columbus Avenue, Borough of Manhattan.

Public School 161—New building, West 133rd St., Amsterdam Ave. & West 135th St., Borough of Manhattan.

Public School 305—New building, Monroe and Madison Streets, Tompkins & Marcy Avenues, Borough of Brooklyn.

Prequalification application forms will have to be secured from and must be submitted to the Superintendent of Design, Construction and Physical Plant, Bureau of Construction, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York.

Bids when advertised, will be received from prequalified bidders only.

Time for submitting prequalification applications by contractors will expire on Friday, July 1, 1960.

JOSEPH R. WEISS,
Superintendent of Design, Construction and Physical Plant

Starting: Tuesday June 14, 1960
Five (5) days.

Dated: June 9, 1960

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5350) will be received at Lewiston, California, until 1 p.m. Pacific Standard Time (2 p.m. Daylight Savings Time), July 21, 1960, for furnishing labor and materials for Whiskeytown Dam, Central Valley Project, Trinity River Division, California. Location near Redding, California in Shasta County. Principal items are 3,595,000 cu. yds. excavation; 3,800,000 cu. yds. earthfill in embankment; 24,000 cu. yds. concrete; and other work. Completion time 975 days. For particulars, address Bureau of Reclamation, P. O. Box 247, Lewiston, California; P. O. Box 2511, Sacramento, California, or Building 53, Denver Federal Center, Denver, Colorado. Floyd E. Dominy, Commissioner.

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until August 15, 1960, and will then be publicly opened, for furnishing and installing approximately 11,000 feet of 30 inch cast iron gravity main from Miraflores Filter Plant to Corozal, Canal Zone. Plans and specifications will be available on or about June 15, 1960 for examination by interested parties in the Procurement Division, Panama Canal Company, 21 West St., New York 6, N. Y. Complete sets of data may be obtained upon payment of $50.00 refundable deposit for each set. For further information, contact this office. Telephone BOwling Green 9-5380, extension 73. Reference PC 60-87.

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone until July 22, 1960 and will then be publicly opened for the following: Construction of 66 masonry units comprising 84 apartments, three and four bedroom types, single and duplex units, located at La Boca, Balboa and Balboa Heights, Canal Zone. The work also includes all necessary grading, roads, sidewalks, landscaping, and the following systems: water, electrical, telephone, sanitary sewer, and storm drainage. Plans and specifications will be available after May 31, 1960 for examination in Procurement Office, Panama Canal Company, 21 West St., New York 6, N. Y. Complete sets of data may be obtained upon payment of $50.00 deposit. For further information contact this office. Telephone BOwling Green 9-5380, Extension 73. Reference PC 60-80.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-5354) will be received at Denver, Colorado, until 2 p.m., Mountain Standard Time, July 14, 1960, for furnishing stop logs, lifting frame, and stop log guides, having a total estimated weight of 1,595,000 pounds for penstock intakes at Glen Canyon Dam, Colorado River Storage Project, Arizona-Utah. Delivery is desired within 330 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado. Floyd E. Dominy, Commissioner.

Bids: June 30, 1960

New Jersey Turnpike Authority
Advertisement for Proposals
Contract No. R-70

Proposals are invited for Contracts Nos. R-70 (R-70A, R-70B and R-70C) which involve the construction of median barrier between Mile 0 and Mile 90 of the New Jersey Turnpike and other incidental work in the median and adjacent to the outer shoulders along the entire length of the Turnpike. Proposals may be submitted for separate Contracts Nos. R-70A, R-70B and R-70C, and for a single Contract No. R-70, covering all of the work.

The principal items of work include:

	R-70	R-70A	R-70B	R-70C
Galvanized Steel or Aluminum Double Guard Rail Median Barrier, Lin. Ft.	396,000	147,000	148,000	101,000
Reinforced Concrete Median Barrier, Lin. Ft.	1,100	.....	300	800
Macadam Median Surfacing, Sq. Yds.	140,000	53,000	51,000	36,000

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 o'clock, Eastern Daylight Saving Time, on the morning of June 30, 1960, at which time and place said proposals will be publicly opened and read.

Each bidder must submit with his proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours on or after June 9, 1960, at the office of the Authority, and will be furnished upon payment of Fifteen Dollars ($15.00) for each set, not refundable.

NEW JERSEY TURNPIKE AUTHORITY
Joseph Morecraft, Jr., Chairman

District of Columbia—Highway Construction—Dept. of Hwys. & Traffic, D. C., May 24, 1960. CONSTRUCTION OF ROADWAY AND STRUCTURES, NORTH APPROACH TO NEW WEST HIGHWAY BRIDGE OVER POTOMAC RIVER, VICINITY 14TH ST., FEDERAL AID INTERSTATE PROJECT I-IG-95-1(8)0, Contract No. 3, Invitation No. C-60172-H, consisting of approx. 12,490 lin. ft. Combination Portland Cement Concrete Curb & Gutter, 9" Curb; 8,900 Cu. Yds. Reinforced Portland Cement Concrete Protective Basin; 4,990 Cu. Yds. Substructure Concrete; 271,750 lbs. Structural Low Alloy Steel; 5,310 Cu. Ft. Class B Stone Masonry; 2,180 Cu. Ft. Class A Stone Masonry; and 783,500 lbs. Structural Carbon Steel. (Wage Rates have been predetermined by the Labor Dept. and will be incl. in Add. #1). "Pre-bid meeting will be held to answer questions of bidders on June 16, 1960, at 2:00 PM (EDT) in Rm. 500, District Bldg., 14th and E Streets, N.W., Wash. 4, D. C." Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Division, Procurement Office, D. C., Rm. 404, 499 Pennsylvania Ave., N.W., upon deposit of a certified check for $50.00 per set, payable to D. C. Treasurer. (Phone NA 8-6000, Ext. 2378). SEALED BIDS to be opened 3:00 PM, EDT, June 23, 1960, in Rm. 424, 499 Pa. Ave., N.W.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-5353) will be received at Fargo, North Dakota until 10 a.m., Central Standard Time, July 19, 1960, for furnishing labor and materials for Jamestown-Grand Forks 115-kilovolt Transmission Line No. 1, Transmission Division, North Dakota, Missouri River Basin Project. Location in Stutsman, Griggs, Steele and Grand Forks Counties, North Dakota. Principal items are 948 structures—furnishing and constructing structures of various types and maximum pole lengths; 2,877 assemblies—furnishing, assembling and attaching insulator assemblies with various numbers of insulators; 110.5 miles of line—furnishing and stringing three 636,000 circular-mil ACSR conductors; and other work. Completion time 400 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 1993, Fargo, North Dakota; or Building 53, Denver Federal Center, Denver 25, Colorado. Floyd E. Dominy, Commissioner.

OFFICIAL PROPOSALS

(Continued from preceding page)

Bids: June 21, 1960

Cannonsville Dam Contract 465

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time (10:00 A.M., Eastern Standard Time), on Tuesday, June 21, 1960, for Contract 465, for the construction of the Cannonsville dam, waste weir, and weir, waste, and outlet channels, and the completion of construction of the release water works, together with the plugging of the diversion conduit, construction of a gaging weir, access road and final grading in the vicinity of the dam, installation of equipment and other appurtenant work, all as set forth in the specifications. The Cannonsville dam will be approximately 2,800 feet in length along the top, will have a maximum height of about 175 feet, and will be constructed of earth compacted by rolling. The work is located near the Village of Deposit, Delaware county, New York.

Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312, at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars apply at the office of the Chief Engineer at the above address.

ARTHUR C. FORD, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply: Betty Cohen, Acting Secretary.

Bids: July 12, 1960

The Port of New York Authority Contract PN-630.002

PORT NEWARK
BERTHS 61 AND 63
UPLAND AREA
PAVING, UTILITIES AND RAILROAD TRACK

Sealed proposals for the construction of pavement utilities and railroad track in the upland area at Berths 61 & 63 at Port Newark will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, July 12, 1960, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Assistant Chief Engineer for Design of the Authority, Room 1115. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, June 16, 1960

READ THE OFFICIAL
PROPOSAL COLUMN OF
ENGINEERING NEWS-RECORD
THIS WEEK AND EVERY WEEK

EMPLOYMENT OPPORTUNITIES

ADDRESS BOX NO. REPLIES TO: Box No.
Classified Adv. Div. of this publication.
Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 520 N. Michigan Ave.
SAN FRANCISCO 4: 68 Post St.

• POSITIONS VACANT

Detailer & Checker Structural Steel. We require an experienced man between the ages of 30 and 45 years for permanent position in our Drafting Room. Hospitalization and retirement benefits. Give references, age, and salary expected in application. Barber & Ross Company, 2323-4th Street, N. E., Washington 2, D. C.

Permanent Position: Structural engineer with M.S. degree from well recognized engineering school. Well grounded in the Theory of Elasticity to handle complex indeterminate structures. Excellent living conditions, good future for young and responsible engineer. Submit Graduate School credits. Location North Carolina. P-4509, Engineering News-Record.

Draftsmen, Structural-Experienced checkers and detailers of structural steel shop drawings. Permanent position. Fink and Zwecker Co., 1100 Crescent Ave. N.E., Atlanta 9, Ga.

Superintendent - Engineer - Foreman. Sewerroadwork. New York area. Address experience resume to P-4565, Engineering News-Record.

Highway Junior Engineers for State of Connecticut. New half-billion dollar construction program now in planning and design stage. Opportunities galore for planning, design, traffic. Excellent working conditions. Modern air-conditioned building. Steady professional advancement. Chance to participate in program of full-time graduate study at Yale (Traffic School) while receiving full salary. Merit exam. will be given throughout the U. S. at locations convenient for applicant. Write to State Personnel Department, Room 405, State Office Building, Hartford, Connecticut.

Midwest Consulting Engineering Firm has openings for Structural Design Engineer with few years experience in general structural design. Masters Degree in structures preferred; mechanical design engineer with experience in reports and design of power generating stations; sanitary design engineer experienced in waterworks and sewerage and drainage design and reports; electrical design engineer with general experience in electrical design and reports. Send resume of training, experience and references to P-4545, Engineering News-Record.

Specifications Writer. Permanent position available immediately with established Midwestern consulting firm. Architectural degree preferred. Moving expenses paid. 3-week vacation. Salary commensurate with ability. Write P-4548, Engineering News-Record.

Black Top Plant superintendent wanted. Experience in handling men and maintenance of equipment. Good future. P-4552, Engineering News-Record.

Civil Engrs.—City of Redding, Calif. Associate—$570-692. B.S. plus 5 yrs. exp. req'd. Assistant—$517-$628. B.S. plus 3 yrs. exp. req'd. Two vacancies in 13-man staff engaged in all phases of municipal engineering including water and electrical system. $3⅘ Million in new projects annually. Pleasant living and working conditions. A sportsman's paradise. State Retirement System. 10% salary increase proposed 7-1-60. Send resume to R. H. Ward, City Engr., P. O. Box 271, Redding, Calif., before July 5, 1960.

City Engineer, Registered Civil Engineer with several years of experience in all engineering phases of municipal work and capable of handling engineering matters of a growing city of 13,000, including supervision of Public Works Dept., building inspections and city planning. Send resume of educational background and work experience as well as salary requirement to: City of White Bear Lake, City Hall, White Bear Lake 10, Minn.

• POSITIONS VACANT

Cost Engineer—for supervision of entire cost accounting system for leading building and heavy construction firm, principal office in N.Y. Metropolitan area. Minimum 5 years experience in cost supervision and analysis required. Reply with complete resume to P-4615, Engineering News-Record.

Engineering Draftsman—Experienced in mapping, platting and surveying in connection with subdivisions, roads, topography, street layout, computations. Must do neat and accurate work. Permanent. Southern Virginia location. P-4620, Engineering News-Record.

Construction Engineer—For inspection of Municipal construction of streets and sewers and supervision of project inspection personnel. Prefer engineering education background and recent construction experience. Permanent Civil Service Appointment, starting salary $269.80 biweekly with yearly increase to $310.90 biweekly after three years. Submit resume and list of references to Director of Public Service, P.O. Box 530, Middletown, Ohio.

Wanted—Assistant City Engineer. Age 28-40. Must have college degree in Civil Engineering and not less than five years experience in the engineering field. Good opportunity for advancement in a rapidly growing city of 20,000. Salary open. Contact H. F. Beisner, City Engineer, Cedar Falls, Iowa.

Resident Engineer—at least five years of railroad construction experience. Good salary. St. Louis area. Please send resume of experience. P-4601, Engineering News-Record.

Sanitary Engineer wanted—contact Employment Office, Wright-Patterson Air Force Base, Ohio, for details.

Wanted—Graduate engineer with field inspection experience on general and heavy construction projects. For overseas assignment with long established consulting engineering firm. Permanent employment at salary commensurate with ability. Please send resume and salary requirements to P-4589, Engineering News-Record.

Engineer—Concrete. Progressive So. Calif. concrete company requires experienced technical man in quality control and research and development of concrete aggregates and affiliated products. College background preferred, but not essential. Send educational resume and experience to P-4635, Engineering News-Record.

Engineer Vacancies — Electrical, General, Construction, Electrical Inspectors, and civil from grades GS-4 to GS-12 with salaries $3755 to $8810 per year. For full information contact Area Engineer, U.S. Army Engineer District, NY, Plattsburgh Area Field Office, Plattsburgh Air Force Base, New York.

Teaching and Research Assistantships are available to qualified students while working for M. S. or PH.D. degree in either solid or fluid mechanics. Write, Chairman, Dept. of Engineering Mechanics, University of Kansas, Lawrence, Kansas.

• POSITIONS WANTED

Field-office engr. layout, supervision, take off, etc. municipal, bldg. and heavy const. large or small firms, single. Location open. E. Brown, 600 N. 71st Ave., W. Hollywood, Fla.

Construction Manager, BSCE and 2 years M.E. Thoroughly capable, 20 years experience on various type projects. Best of references. Presently employed, desire change. Now have unclassified G. C. license in N. C., will work anywhere in U. S. PW-4464, Engineering News-Record.

Sanitary Engineer, 62 years old seeks an active connection. Can work with and handle men and produce results. Broad experience in investigations reports, design and supervision of construction of water and sewerage systems and water and sewage treatment plants. PW-4643, Engineering News-Record.

(Continued on opposite page)

EMPLOYMENT OPPORTUNITIES

DISPLAYED RATE:

The advertising rate is $38.20 per inch for all advertising appearing on other than a contract basis. Frequency rates quoted on request.

An advertising inch is measured ⅞" vertically on a column—3 columns—30 inches to a page.

Subject to Agency Commission.

JUNE 30TH ISSUE CLOSES JUNE 13TH

UNDISPLAYED RATE:

$2.40 per line, minimum 3 lines. To figure advance payment count 5 average words as a line.

Position Wanted ads take ½ of above rate.

Box numbers—count as 1 line.

Discount of 10% if full payment is made in advance for 4 consecutive insertions.

Not subject to Agency Commission.

Send NEW Ads and Inquiries to Classified Advertising Division of ENGINEERING NEWS-RECORD, P. O. Box 12, N. Y. 36.

SENIOR PROCESS ENGINEERS

Permanent employment with an expanding company. Excellent advancement opportunities for men with at least 10 years experience in process design of petroleum and petro-chemical plants.

Send detailed resume to:
G. VICTOR HOPKINS

ARTHUR G. McKEE & CO.
2300 Chester Ave., Cleveland 1, Ohio

MECHANICAL ENGINEERS

Openings for graduate engineers with a minimum of 5 years experience with consulting firm on piping, review of manufacturer's drawings, equipment layout. Powerplant experience desirable. Fringe benefits, part relocation costs. Send experience resume to Personnel Department.

HARZA ENGINEERING COMPANY
400 W. Madison Street Chicago 6, Illinois

GENERAL CONSTRUCTION
ESTIMATORS

For immediate employment, fully experienced estimators on competitive bidding. Splendid opportunity with one of Boston's leading construction firms. Send complete resume of experience and qualifications.

JEFFERSON CONSTRUCTION CO.
75 First Street Cambridge 41, Mass.

HIGHWAY ENGINEER

Large Midwest Highway Consultant is seeking a qualified Highway Engineer with experience in highway inventories, including classification, road use studies, fiscal studies, sufficiency ratings, highway needs studies, etc. Foreign assignment, with knowledge of Spanish desirable but not necessary. Salary commensurate with ability and experience.

P-4630, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

• POSITIONS WANTED

(Continued from opposite page)

Graduate Civil Engineer, 31, Married, 6 Years Construction Experience, U. S. Citizen, Fluent Spanish, Registered in Colombia, will consider U. S. or Foreign employment. PW-4460, Engineering News-Record.

Electrical Supt. or Chief Electrician age 59. 40 years experience, Construction Maintenance, Starting Salary $200.00 per week. Excellent References, Resume on Request. PW-4471, Engineering News-Record.

Construction Superintendent B.S.C.E. Exp. Mgr., Chf. Eng., Hvy. Const. Roads, Flood Control, Tunnels, Bldgs., Govt. Contracts, will Relocate. 3419 Utah, St. Louis, Mo., Elswirth.

Structural Steel Fabrication Manager 10 years experience, estimating, selling, supervising. Production of 2 million per year. Business BSCE and 2 years M.E. Best of references. Excellent varied experience. Presently employed, desire change. Will relocate anywhere in U. S. PW-4463, Engineering News-Record.

Project Manager or Engineer. California Registered P.E. M.S. in Structural Engineering. Fellow-ASCE. 28 years experience in construction, design and administration of highways, bridges and storm drains. Administration of multimillion dollar complex interchanges for past ten years. Can handle projects from preliminary design to completed construction. Desires foreign work. PW-4483, Engineering News-Record.

Executive 15 yrs exp every phase of the business, field & office, legal-const background, mgr, atty, administrator, troubleshooter. PW-4473, Engineering News-Record.

Estimator, Experienced in estimating and cost keeping, Highways and Drainage contracts. Evenings and weekends, Long Island. PW-4487, Engineering News-Record.

Construction superintendent considerable experience in industrial and commercial work. PW-4494, Engineering News-Record.

Construction Superintendent—Project Manager. Industrial & Commercial buildings. Will relocate. PW-4497, Engineering News-Record.

Electrical Engineer, BEE, Reg PE, 37, 14 years diversified experience in industrial power and control, power distribution, and petroleum-electric fields. Four completed foreign contracts. Speaks French, Spanish. Available foreign or domestic. PW-4506, Engineering News-Record.

General Supt. Age 50—25 years experience sewer and water line construction also well points. Reference on request. Available now. PW-4576, Engineering News-Record.

(Continued on the following page)

SENIOR ESTIMATOR

We want an experienced construction man who is able to participate and direct others on the quantity survey, pricing, subbid solicitation, analysis, and final close-out of bids for large building, technical and industrial projects.
Most of our work is in the Western and particularly Southwestern portion of the United States, however, we bid throughout the world. Our current volume is in the 60 million dollar range. Our growth pattern has been outstanding among building contractors and applicants will be considered on ambition and ability to help in this expansion, as well as the prime qualifications of experience, education, executive and technical ability.

C. H. LEAVELL & COMPANY
1900 Wyoming Ave. El Paso, Texas

SANITARY ENGINEER

Capable of responsible charge of investigations, reports, and design for growing established firm specializing exclusively in sanitary engineering. Minimum of 10 to 15 years' experience. Salary fully commensurate with qualifications. Excellent opportunity for advancement. Resume in complete confidence.

CAMP, DRESSER & McKEE
18 Tremont Street
Boston, Massachusetts

PRODUCTION ENGINEERS

To Locate in Florida

Desirable Positions available immediately with very large progressive prestressed and precast concrete manufacturer.

Salary commensurate with ability.

Send complete resume with recent photograph.

Will contact qualified applicants and arrange for personal interview.

P-4584, Engineering News-Record
Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

WANTED
ENGINEERING ASSOCIATES

SANITATION WATER SUPPLY (foreign & domestic)
PETROLEUM (foreign)
GEOLOGICAL & MINING (foreign)
CHEMICAL & PETRO-CHEMICAL (foreign and domestic)
WATER RESOURCES (foreign)
HYDRO-ELECTRIC (domestic & foreign)
CONSTRUCTION (domestic & foreign)

President and Vice-President levels.
Complete charge of your own division.
Drawing account against substantial share of Division profits before tax PLUS income from own secured investment.
Minimum Investment $25,000.00
GLOBAL Activity—TOP Recognition

Send complete resume including photo to:

P. O. Box 968,
Station "B", Montreal, Quebec

OPPORTUNITY

SALES MANAGER, Age 35 to 43
Salary $12,000 + Expenses + Bonus
Can Purchase Part Interest on Earnings.
LOCATION—Eastern New York State

Long Established Business. Distributorship Heavy Construction Machinery.
Tractors, Excavating Machinery, Aggregate, Asphalt and Concrete Processing Plants.
Preference experience in design and Estimating and selling aggregate, and Asphalt and Concrete Plants.
Eligible candidates reply immediately.
All information furnished to be held in strict confidence.
Engineers without sales experience please do not reply.

P-4635, Engineering News-Record
68 Post St., San Francisco 4, Calif.

ENGINEERS

Immediate openings for engineer—designers with minimum five to ten years experience in design and planning of hydroelectric projects. **Also senior hydrologist, senior and junior hydropower planners.** Fringe benefits. Send complete resume of experience and qualifications to:

HARZA ENGINEERING COMPANY
400 West Madison Chicago 6, Illinois

ENGINEERS AVAILABLE

FAR EAST

Project manager with top team of registered architect, civil, mechanical, electrical and field engineers capable of handling jobs from design through construction. Presently in Korea. Available 1 July, 1960.

PW-4590, Engineering News-Record
68 Post St., San Francisco 4, Calif.

• POSITIONS WANTED
(Continued from preceding page)

Construction Superintendent 25 years experience on industrial & municipal work. Power, water and sewage plants from bid to completion. Will relocate. PW-4566, Engineering News-Record.

Mechanical Engineer: Reg. P.E. Experienced in steam power plant & general construction desires position with contractor. PW-4560, Engineering News-Record.

Civil Engr Grad—25—Helicopter, fixed wing & instrument commercial pilot. Some experience in consulting, sanitation & highways. Desire engineering work where flying will be an asset. Eligible to leave Army Sept 60. PW-4547, Engineering News-Record.

Available Executive Hydraulic Dredge Civil Engineer. Many years experience in field investigation, estimates, management, consultant. Full time or project basis. PW-4554, Engineering News-Record.

Florida—Age 29, BSCE, seeks permanent position offering variety and opportunity for advancement (const., engr., or sales). Hiway background, incld. structures. Know heavy equip. Complete resume on request. PW-4517, Engineering News-Record.

Steel fabricator, plant or general manager. Age 44, married, B.S.C.E., Reg. C.E. Calif. Experienced in structural design, estimating, detailing, plant and field supv. and management. Desire position with established, progressive company offering opportunity for advancement. Prefer West Coast. Available now. PW-4580, Engineering News-Record.

Structural Engineer, age 34, 13 years experience: construction, design and supervisory, including refineries, airfields, dams, hydraulic structures, bridges. Graduate engineer and registered. PW-4581, Engineering News-Record.

Chief Civil and Structural Engineer—age 46—20 years experience including private practice U.S. & overseas—$14,000. PW-4631, Engineering News-Record.

Former consultant, 54, highly productive, ample capital, seeks association with established engineering firm, N.Y. City area. PW-4628, Engineering News-Record.

Survey Team, led by exp. P.E. Precision, route, area survey, layout. Any size, any time. PW-4626, Engineering News-Record.

Project manager, construction supervision, contract administration. 21 years exp. gnl. bldg. const. Desire West Coast only. PW-4625, Engineering News-Record.

Graduate Civil, 36, 10 years experience steel, conc. design, dredging, construction, field work; speaks French; accept work America, abroad. PW-4616, Engineering News-Record.

Project Manager-General Supervision 20 yrs. exp. highways, bridges, waterfront, earthwork, utilities, major projects U.S. & O.S. PW-4614, Engineering News-Record.

Engineer, surveyor, inspector, computer, chief of party. New Jersey registration. Twenty years, highways, sewers, water lines, transmission lines, realty sub-division surveys. PW-4605, Engineering News-Record.

Graduate Civil Engineer—8 years field experience. Power plant construction with 2½ years in Brazil. Available immediately. Will travel frequently. C. E. Whiteside, 4522 So. Clark Ave., Tampa, Florida.

Construction Superintendent. 30 years experience refinery, chemical plants, compressor stations, recycling plants. Will relocate. Foreign or domestic. PW-4594, Engineering News-Record.

Party Chief & Inspector—Diversified experience—single, desires position USA or overseas. PW-4591, Engineering News-Record.

Gen. Supt. 30 years experience in heavy construction. Prefer earth moving, rock or dam and levee work. Will relocate. PW-4588, Engineering News-Record.

• POSITIONS WANTED

Japan—Civil Engineer, 32, experienced in highway and airfield construction seeks responsible position with firm engaged in construction projects. Specialist in soils . . . capable organizer . . . dependable. Top references. PW-4596, Engineering News-Record.

Concrete, soils inspector and technician, 21, married, ambitious. 2½ yrs. exp. in field & laboratory, light & heavy construction, some supervision. Studying civil engineering through ICS. Presently employed by leading consultant. Desires position with gen. contractor in or near District of Columbia. Exc. references. Resume on request. PW-4597, Engineering News-Record.

Graduate Civil Engineer—5 yr. experience in construction, structural and highway design, seeks challenging position with administrative future. Will consider sales position. PW-4595, Engineering News-Record.

Field and layout. Graduate civil. 18 years experience—steam plant, lock, dam and building. Supervision several parties. PW-4639, Engineering News-Record.

M.S.C.E. 14 yrs. supervisory, design, construction, buildings, bridges in U.S., Latin Am., mid-east. 5 languages. Last empl. ass. chief structure engr. with U.S. consultants Latin Am. Interested administrative or supervisory position USA or overseas. PW-4637, Engineering News-Record.

• POSITIONS WANTED

Power Engineer—Graduate E.E. Swiss Fed. Inst. Technology (M.S.), 32 years, single. Nine years experience in utilities, mining and chemical industry. Used to independent, responsible, dynamic and accurate work. Thoroughly competent in design, construction, maintenance and operation of diesel-, steam- and hydro-electric plants, distribution and transmission systems, industrial plants. Excellent administrator, organizer, supervisor and negotiator with genuine business abilities. Fluent English, Spanish, French, German. Interested in design, construction or sales activity. Present location South America. Future location open, U.S.A. or abroad. Available in July for interview in U.S.A. PW-4634, Engineering News-Record.

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No Breakthrough Yet

WATER SUPPLY PEOPLE have been rendered a service by a statement by Theodore M. Schad, which brings cloud seeding and saltwater conversion into perspective. As staff director of the Senate Select Committee on National Water Resources, he has heard and been able to appraise all of testimony given concerning these two dramatic and promising fields during the first year and a half of the committee's scheduled two-year existence. Now with most of the evidence in, he declares:

"The progress reports on these techniques, which federal agencies have filed with the Select Water Committee, give no concrete evidence which would lead one to expect early success. In my opinion it would be a grave mistake to place any great degree of hope on finding an early solution to our water problems from either of these sources."

Without detracting in any degree from the limited success these techniques have enjoyed or from the wider prospects that justify present development effort and expense, Mr. Schad has given water supply people an authoritative answer for citizens and lay officials who are looking for a technical miracle now.

Artificially induced rainfall and a limitless supply of fresh water from the sea are ideas dramatic enough to have caught popular fancy. And as often happens with lay treatment of exciting scientific techniques, potentiality gets such a heavy play that actuality tends to be obscured.

As a result water officials and engineers often have to explain their failure to capitalize on a new technique. The explanation comes more easily with the help of statements like Mr. Schad's.

Simpler Shear Transfer?

A THOUGHT-PROVOKING QUESTION is raised in the article, "Shear Transfer Can Be Simple," by Homer H. Hadley, Seattle consulting engineer (ENR May 26, p. 45). The article pointed out that shear can be adequately transferred between the flange of a steel beam and a concrete slab in composite construction by merely placing small weld beads on the steel flange. The question—important from both safety and economic viewpoints—is: Are shear connectors really necessary?

In view of the elaborate precautions taken in the past, and still being taken, to insure shear transfer, additional laboratory tests and field experience are, of course, required before the question can be answered. Nevertheless, the tests reported by Mr. Hadley, and others reported previously, indicate that present specifications for composite construction are ultra-conservative. Also, analysis of stress conditions in composite construction shows that where the slab is most needed as a "cover plate" for the steel beam, shear connectors are hardly necessary, since shear is at or near zero.

Such indications suggest that research can throw useful light on the minimum requirements for shear connectors necessary for safety during the life of a structure. It might even show that shear transfer can be simpler than we now believe.

Work for Better Codes

BUILDING CODES are no problem to architects and engineers who are content to deal only with approved materials and construction methods. But those adventuresome designers who would like to try the new in the hope of producing better and less costly structures find that too many building codes bar such pioneering.

The new can be used only if it meets code requirements. And to get variances or amendments to a code is at best time-consuming and costly, and often impossible.

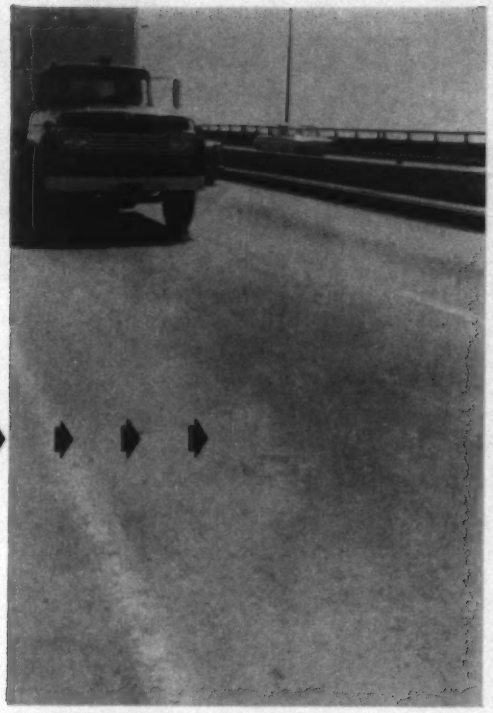
A code change requires legislative action, and this calls for work on the part of those interested in the revision, not only in marshaling authoritative, substantiating data, but also in attending and presenting these data at public hearings. Often, new things are kept out of codes because not enough interest is shown in the change by the construction industry itself.

Designers who had looked optimistically to the trend to performance-standards codes to open the door to new materials and methods may be in for disappointment. Building officials are beginning to find that this type of code must be supplemented by a manual listing accepted materials and methods, and the trend is toward the manual becoming the equivalent of a set of specifications. The result is that performance-standards codes with their manuals are having the same deterrent effect on the introduction of new materials and methods as the older, specification-type codes.

Furthermore, many building departments today are understaffed and lack adequately trained personnel. They are not in a position to evaluate new, complicated designs. Nor can these overworked building officials be expected to push for legislative action singlehandedly to amend their codes to permit a specific new item.

There is something, however, that the construction industry can do to lower the code barrier. Architects and engineers in localities where codes are troublesome should band together for the purpose of maintaining up-to-date building requirements. In cooperation with local building officials, they can suggest code revisions and help enlist the necessary public support to insure favorable legislative action. In short, Advisory Committees on Building Codes at state and local levels, composed of representatives of the various segments of the building industry, could put an end to the disinterest in codes that now allows them to stop progress.

4 hours ago, a ragged hole ➧ ➧ ➧ ➧



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ROCK: BRECCIA TUFF, HIGHLY ABRASIVE

Special report from Green Construction Co. and Tecon Corp.

Drilling blastholes for the $40,000,000 Hills Creek Dam near Oakridge, Oregon—that's when Green Construction Co. of Des Moines and Tecon Corp. of Dallas encountered Breccia Tuff, a highly abrasive rock with big angular fragments. They used Timken® carbide insert bits. With reconditioning, each Timken bit drilled from 2,500 to 3,000 feet!

Which Timken bit should you use?

The Timken carbide insert bit is the most economical bit you can use for hard, abrasive ground. But in softer ground use the low-cost Timken all steel multi-use bit. Or use both bits in changing ground—they're interchangeable in the same thread series. Dozens of different Timken bits fit the same drill steel. All are made from Timken electric furnace fine alloy steel. All have special shoulder unions that protect threads against drilling impact. Let our engineers help you choose the right Timken bit for *your* job. Phone or write: The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable: "TIMROSCO". *Makers of Tapered Roller Bearings, Fine Alloy Steel and Removable Rock Bits.*

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